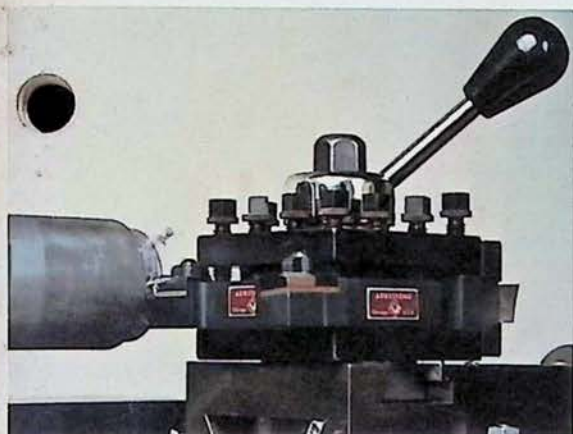
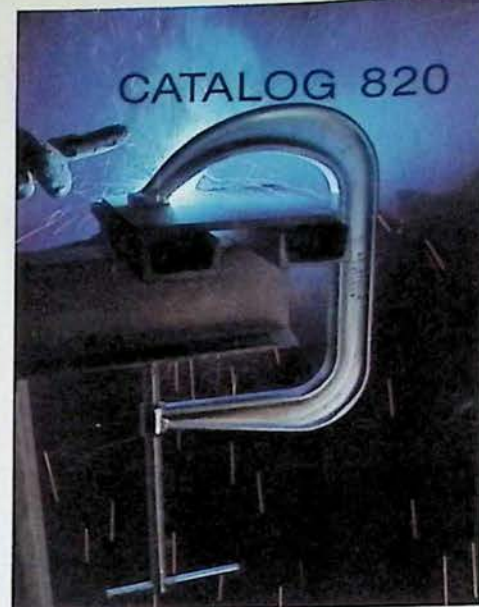
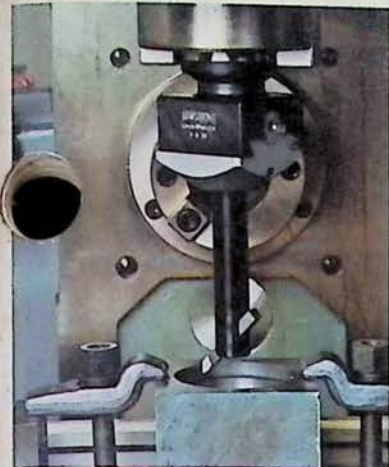
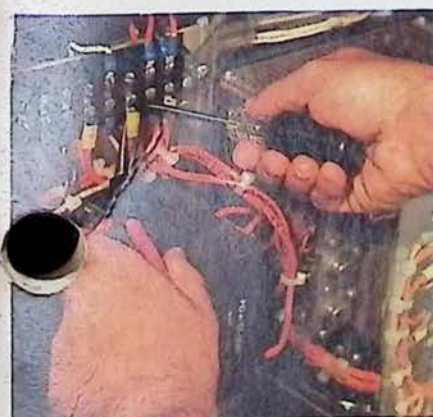




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Browning

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ARMSTRONG BROS. TOOL CO.

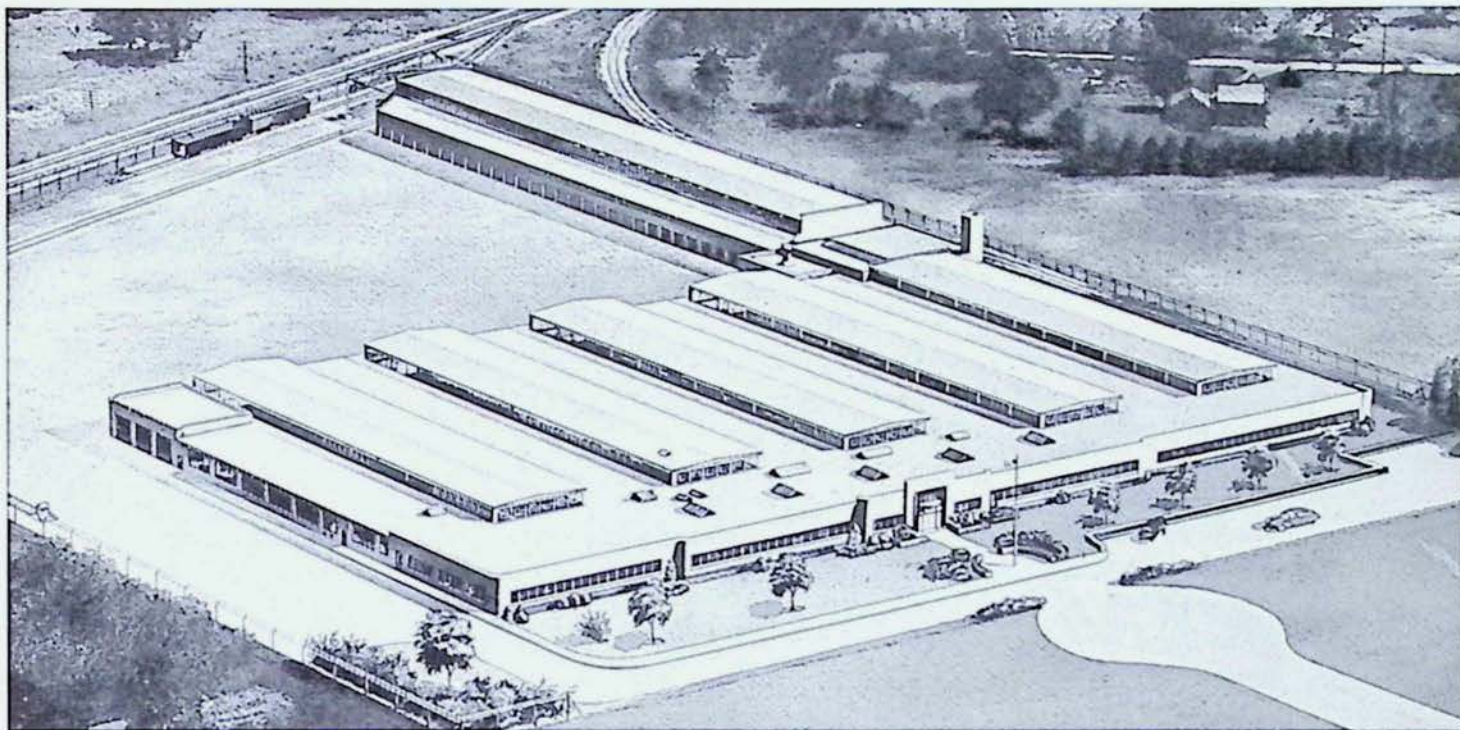
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"THE TOOL PEOPLE"

THE TRADE MARK



OF QUALITY



The Plant and General Offices of

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MANUFACTURERS OF

TOOL HOLDERS, QUICK CHANGE LATHE TOOLS, TURRET TOOL POSTS, BORING HEADS, TOOL BITS, BLADES, CUTTERS, AND MACHINE SHOP SPECIALTIES, LATHE DOGS, CLAMPS; ALL TYPES OF WRENCHES, DETACHABLE SOCKETS, AND DRIVE PARTS, PLIERS, SCREWDRIVERS, HAMMERS, PUNCHES AND CHISELS; PIPE THREADERS AND CUTTERS, PIPE VISES AND VISE STANDS, PIPE WRENCHES AND TONGS, AND TUBE WORKING TOOLS.

CATALOG 820

CATALOG 820 SUPERSEDES ALL PREVIOUS EDITIONS

WHEN ORDERING, specify our catalog number and the name of the item desired.

PRICES for the tools or items in this catalog are shown in a separate price list which we will gladly furnish upon request. Prices are subject to change without notice.

ALL FINISHES, MATERIALS AND DESIGNS as mentioned in this catalog are subject to change without notice.

DIMENSIONS:—All dimensions are shown in inches unless otherwise stated.

DELIVERY: F.O.B. cars, Chicago, Ill., U.S.A. Title and right of possession will pass to customer upon delivery to carrier at Chicago, Ill.

LIABILITY: Armstrong Bros. Tool Company disclaims any responsibility and liability for damage or personal injury resulting from tools used improperly, or from tools repaired or modified by others, or from tools which have been abused or used beyond normal expectant tool life.

SAFETY, Use tools only for their designed purposes and within their size range. Wrenches are designed to a specific size—length—strength ratio, and to use additional leverage, like a "cheater" is hazardous.

Always use eye protection for any job involving the use of tools—particularly when using striking tools. For additional safety tips pertaining to striking tools—write for booklet.

SHORTAGE CLAIMS: No claims will be allowed for shortages or other discrepancies unless reported within 10 days after receipt of shipment.

RETURNED GOODS POLICY: No merchandise (other than covered by our guarantee, as stated below) may be returned without first receiving permission from our General Office, Chicago. Discontinued items are not returnable.

GUARANTEE: If any ARMSTRONG Tool fails to give *complete satisfaction* and has not been abused or altered, return it to our factory in Chicago, Illinois, U.S.A., transportation charges paid, and it will be repaired or replaced free of charge. No claim for damages of any nature will be allowed, and all our products are sold with this express understanding.

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ARMIDE



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Armstrong Tools are sold through Industrial Distributors . . . the most efficient and economical means by which we can get Armstrong products from our plant to yours.

Your local Armstrong Distributor is a good man to talk to about any of your tooling requirements. He's had a lot of experience helping to solve many kinds of problems, so he's well equipped to furnish helpful ideas, suggestions and product information that will assist you in utilizing Armstrong tools in your business.

Your Armstrong Distributor stocks—ready for immediate delivery—a broad selection of Armstrong machine shop tools, hand tools and pipe tools. A telephone call will put him at your service.



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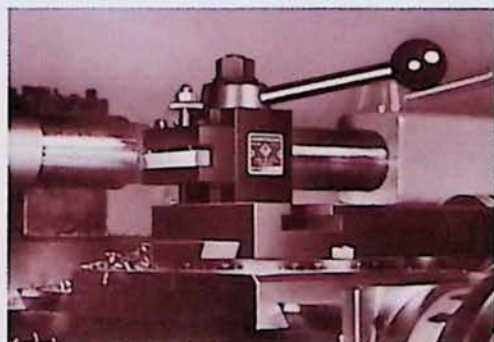
The Armstrong System of Tools . . . a complete, efficient system of tools and tool holders for every machining operation.

The Armstrong Tool Holder System provides superior tools for every operation on lathes, planers and shapers, most operations on turret lathes and screw machines, and boring operations on milling machines. All of the tool holders described in this catalog—from the simplest to the most sophisticated—embody the original Armstrong principle of permanent shanks or tool holders which hold inserted tool bits made of high speed steel, carbide, cast alloy or other cutting material.

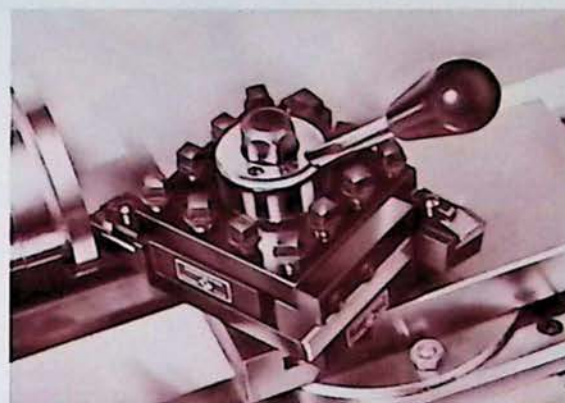


TURNING TOOL HOLDERS The basic tools of the Armstrong system, these tool holders are made in a wide range of types and sizes. All are drop forged steel, and each has special features which uniquely match it to a particular job.

BORING TOOL HOLDERS Providing the right combination of boring tool and holder is easy with the Armstrong system. And besides the conventional styles of boring tool holders, Armstrong makes special purpose holders that speed machine setup and extend the utility of tooling.



QUICK-CHANGE TOOLS Special features in Armstrong Quick-Change Tools make them popular for short-run production shops as well as toolrooms. The tool post is engineered to fit an exceptionally wide range of lathes, and its three usable sides allow machining in either direction. Tool holders are available for all machining operations, and each may be precisely and permanently adjusted for correct position on the post.



TURRET TOOLS AND HOLDERS A complete system of tooling in themselves, Armstrong turret tools can make any lathe more efficient and more productive. Rugged, heavy-duty units, they permit heavy cuts and fast machining. Turrets are manually self-indexing to twelve positions to get the tool to the work at the most effective angle. Turret tool holders are specially designed to center automatically in the tool post without need for shims or spacers.



BORING HEADS Armstrong offers two styles of adjustable boring heads to cover the range of precision boring operations. Rugged, square-body heads are well-suited for heavy stock removal on mills and jigborers. Double-hole boring heads have a wide range of adjustment, and by minimizing vibrations and out-of-balance conditions are capable of very smooth work. Solid, precisely accurate construction in these heads is a guarantee of long, trouble-free service.

Armstrong tools and tool holders are backed by the strongest written guarantee in the tool industry (see page II).



Simple, rugged construction. Sealed against chips, dirt, etc. Lifetime lubricated—never needs oil or grease.

Precision machined, generously proportioned dovetails insure accuracy, rigidity, quick tool changes.

Precision ground buttons.

Three usable sides—machine in either direction—save time, improve efficiency.

Minimum swing of locking handle locks tool holders securely.



Greater vertical height—use on greater range of lathes.

All working parts hardened for long life.

ARMSTRONG QUICK CHANGE TOOL SYSTEM

Sustained accuracy, speed, efficiency and economy—you get them all in the ARMSTRONG Quick Change Tool System. Designed around a rugged, precision machined tool post that gives you three usable tool holder mounting positions, the ARMSTRONG Quick Change Tool System includes a broad selection of tool holders to handle a wide range of machining requirements. Tools have black oxide finish.

Cat. No.	Center Bolt Diam., In.	Height of Block, In.	Width of Block, In.	For Lathes Swing In.	Approx. Wt. Lbs.
QC-4	1/2	2 1/2	2 1/2	Up to 13	5.25
QC-5	5/8	3	3	10 to 16	8.40
QC-6	3/4	3 1/4	3 1/2	13 to 19	13.00
QC-8	7/8	4	4	14 to 21	22.00

ARMSTRONG QUICK CHANGE TOOL HOLDERS

TOOL HOLDER FEATURES

- Each tool holder individually Brinell tested
- Designed for maximum support of cutting tool
- Wide range of height adjustments on tool post
Once set, adjustments stay locked in position
- All holders made of ALLOY steel

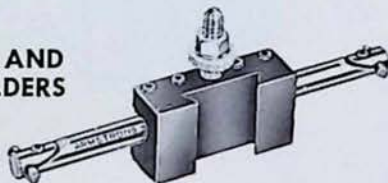
TURNING AND FACING TOOL HOLDERS

Takes Turning and Facing Tool Bits



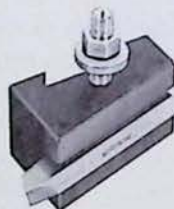
TURNING, FACING AND BORING TOOL HOLDERS

V-Slot holds Round Boring Bars as well as Square Tool Bits



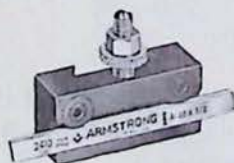
LEFT HAND OFFSET TOOL HOLDERS

15° offset permits machining to a shoulder without turning tool post



CUT-OFF TOOL HOLDERS

Blade supported full length of holder. Furnished with high speed cut-off blade



Cat. No.	Tool Bit Size In.	Use With Tool Post No.	Approx. Wt. Lbs.
4A-QC	3/16 to 1/2	QC-4	1.00
5A-QC	3/16 to 5/8	QC-5	1.30
6A-QC	1/2 to 7/8	QC-6	2.25
8A-QC	1/2 to 1	QC-8	3.90

Cat. No.	Tool Bit Size In.	Boring Bar Diam. In.	Use With Tool Post No.	Approx. Wt. Lbs.
4B-QC	3/16 to 1/2	3/16 to 1/2	QC-4	1.00
5B-QC	3/16 to 5/8	3/16 to 5/8	QC-5	1.30
6B-QC	1/2 to 7/8	1/2 to 3/4	QC-6	2.25
8B-QC	1/2 to 1	1/2 to 1 1/16	QC-8	3.90

Cat. No.	Tool Bit Size In.	Use With Tool Post No.	Approx. Wt. Lbs.
4C-QC	3/16 to 1/2	QC-4	1.50
5C-QC	3/16 to 5/8	QC-5	2.00
6C-QC	1/2 to 7/8	QC-6	3.10
8C-QC	1/2 to 1	QC-8	4.30

Cat. No.	Blade Size In.	Use With Tool Post No.	Approx. Wt. Lbs.
4D-QC	3/32 x 1 1/2	QC-4	1.25
5D-QC	3/32 x 5/8	QC-5	1.60
6D-QC	1/8 x 3/4	QC-6	2.75
8D-QC	3/16 x 1	QC-8	4.25



ARMSTRONG QUICK CHANGE TOOL HOLDERS

KNURLING TOOL HOLDERS

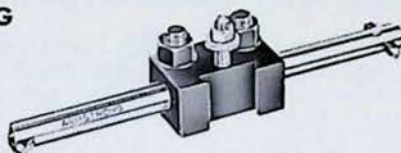
Revolving head, self-centering.
Furnished with 3 pairs of high
speed knurls



Cat. No.	Knurling Cap., In.	Diam. Knurls, In.	Use with Tool Post No.	Approx. Wt. Lbs.
4E-QC	$\frac{3}{16}$ Up	$\frac{5}{8}$	QC-4	2.10
5E-QC	$\frac{3}{16}$ Up	$\frac{5}{8}$	QC-5	2.25
6E-QC	$\frac{1}{4}$ Up	$\frac{3}{4}$	QC-6	3.50
8E-QC	$\frac{1}{4}$ Up	$\frac{3}{4}$	QC-8	5.25

HEAVY DUTY BORING TOOL HOLDERS

Furnished with Boring
Bar and Two high speed
Tool Bits

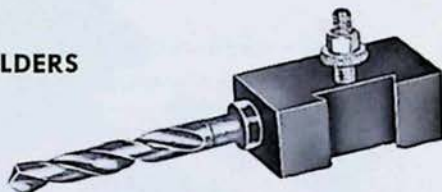


Cat. No.	Bar Diam. In.	*Bushing No.	I.D. In.	Use With Tool Post No.	Approx. Wt. Lbs.
4G1-QC	$\frac{3}{4}$	4G-184	$\frac{3}{16}$	QC-4	3.70
5G1-QC	$\frac{15}{16}$	4G-289	$\frac{3}{4}$	QC-5	7.35
6G1-QC	$\frac{15}{16}$	4G-289	$\frac{3}{4}$	QC-6	10.75
8G1-QC	$1\frac{1}{8}$	8G-193	$\frac{15}{16}$	QC-8	16.50
4G2-QC	$\frac{15}{16}$	4G-289	$\frac{3}{4}$	QC-4	5.50
5G2-QC	$1\frac{1}{8}$	5G-293	$\frac{15}{16}$	QC-5	10.50
6G2-QC	$1\frac{1}{8}$	5G-293	$\frac{15}{16}$	QC-6	15.30
8G2-QC	$1\frac{1}{8}$	8G-296	$1\frac{1}{8}$	QC-8	22.00

*Not furnished with tool, order separately. See page 11.

DRILLING TOOL HOLDERS

For #2, #3, #4 Morse
Taper Drills
Drills with power feed
from carriage



Cat. No.	Hole Size Morse Taper	Use With Tool Post No.	Approx. Wt. Lbs.
4H2-QC	#2	QC-4	1.90
5H2-QC	#2	QC-5	2.55
4H3-QC	#3	QC-4	2.25
5H3-QC	#3	QC-5	2.80
6H3-QC	#3	QC-6	4.00
8H3-QC	#3	QC-8	5.80
6H4-QC	#4	QC-6	4.75
8H4-QC	#4	QC-8	6.10

THREADING TOOL HOLDERS

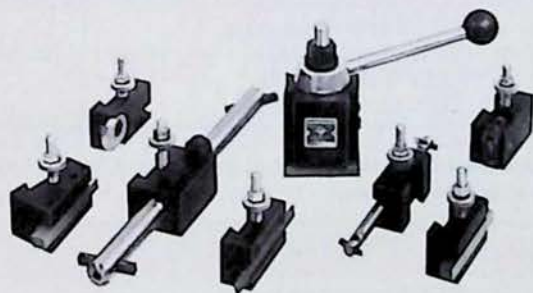
Furnished with high speed sharp
V-Thread Cutter



Cat. No.	Thread Cutter No.	Use With Tool Post No.	Approx. Wt. Lbs.
4J-QC	8151	QC-4	1.00
5J-QC	8153	QC-5	1.60
6J-QC	8155	QC-6	2.65
8J-QC	8157	QC-8	4.20

ARMSTRONG QUICK CHANGE TOOL SETS

Selection of tools to handle a wide range of machining requirements. Each set consists of one Quick Change Tool Post, one each of the following: Turning and Facing tool, Turning-Facing-and-Boring tool, Left Hand Offset tool, Cut-off tool, Knurling tool, Heavy Duty Boring tool and Threading tool. Furnished with wrenches and packed in a cardboard box.



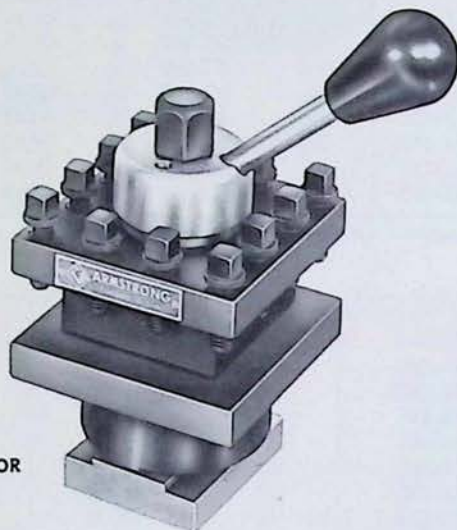
Catalog No.	Tools Furnished * in set	For Lathes Swing In.	Approx. Wt. Lbs.
ATS-4	QC-4, 4A-QC, 4B-QC, 4C-QC, 4D-QC, 4E-QC, 4G1-QC, 4J-QC	Up to 13	17.14
ATS-5	QC-5, 5A-QC, 5B-QC, 5C-QC, 5D-QC, 5E-QC, 5G1-QC, 5J-QC	10 to 16	26.32
ATS-6	QC-6, 6A-QC, 6B-QC, 6C-QC, 6D-QC, 6E-QC, 6G1-QC, 6J-QC	13 to 19	33.86
ATS-8	QC-8, 8A-QC, 8B-QC, 8C-QC, 8D-QC, 8E-QC, 8G1-QC, 8J-QC	14 to 21	65.59



ARMSTRONG TURRET TOOLING SYSTEM

"SELF-INDEXING" TURRET TOOL POSTS

1. **EASY OPERATION** ... One hand indexes and locks turret in any of 12 positions
2. **SIMPLE INSTALLATION** ... No disassembly—detach Center Post Base and machine in your own shop
3. **FASTER INDEXING** ... requires minimum swing to move tool block 90°
4. **ACCURATE** ... indexes on precision machined hardened cams
5. **RUGGEDLY BUILT** ... Allows heavier cuts, faster machining

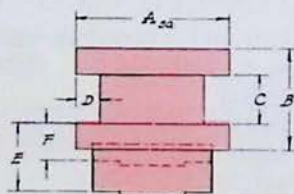


PATENT
APPLIED FOR

Increased production, lower piece parts costs, smoother work flow and simplified scheduling are just four of the many benefits you'll get from an Armstrong "SELF-INDEXING" Turret Tool Post. Mounting one of these rugged, precision-made turrets on any lathe up to 21" swing converts the lathe to an efficient, economical production unit with as many as four tools ready for instant use in any of twelve positions.

Turret mounts in the T slot of the compound rest the same as a regular tool post. The center post base is purposely made of ample size on account of the great variation in height of centers above compound rests and difference in size of T slots of lathes of different manufacture. You can easily fit the turret to your lathe.

Once your turret is machined to your lathe—all the Armstrong Turret Tools on the opposite page will automatically be on center when mounted in the turret. No need for shims. Turret finished in Black-Oxide finish.

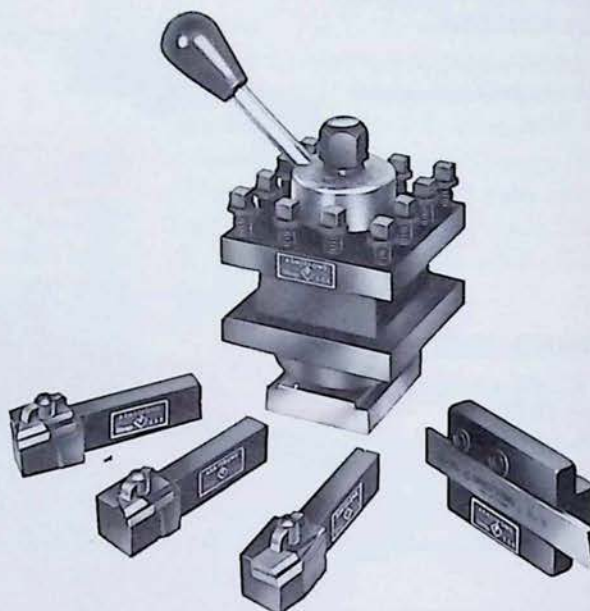


Cat. No.	Turret Dimensions						For Lathes Swing In.	Approx. Wt. Lbs.
	Block Dims.		Tool Slot		Base			
	A In.	B In.	C In.	D In.	E (Max.) In.	F (Min.) In.		
TU-3	3½	2¼	1⅛	¾	1⅜	⅝	12-15	8.75
TU-4	4½	2⅞	1⅝	1⅛	1⅞	¾	15-19	17.50
TU-6	6	3⅜	1⅞	1⅞	1½	¾	14-21	35.00

TURRET TOOL SETS

These tool holders are specially designed—with a common center—for use on the Armstrong "SELF-INDEXING" Turret. You can replace a tool anytime without adding shims or spaces—a real time saver.

Each set consists of a "SELF-INDEXING" Turret Tool Post, one right-hand—positive rake—square insert tool holder, two right-hand—positive rake—triangular insert tool holders, and one cut-off tool with blade.



TU3-5 set consists of the following, including wrenches and packed in a cardboard box:

Cat. No.	Qty.	Tools Furnished In Set	For Lathes Swing In.	Approx. Wt. Lbs.
TU3-5	1	TU3 Turret tool post	12-15	15.50
	2	TR1P Tool Holder		
	1	SR1P Tool Holder		
	1	TU21 Cut-off Tool		

TU4-5 set consists of the following, including wrenches and packed in a cardboard box:

Cat. No.	Qty.	Tools Furnished In Set	For Lathes Swing In.	Approx. Wt. Lbs.
TU4-5	1	TU4 Turret tool post	15-19	24.70
	2	TR2P Tool Holder		
	1	SR2P Tool Holder		
	1	TU22 Cut-off Tool		

TU6-5 set consists of the following, including wrenches and packed in a cardboard box:

Cat. No.	Qty.	Tools Furnished In Set	For Lathes Swing In.	Approx. Wt. Lbs.
TU6-5	1	TU6 Turret tool post	14-21	43.50
	2	TR3P Tool Holder		
	1	SR3P Tool Holder		
	1	TU23 Cut-off Tool		



ARMSTRONG INSERT TOOL HOLDERS

FOR USE IN TURRETS AND CONVENTIONAL TOOL POSTS

These insert tool holders are furnished in two styles:

Style T, for holding triangular inserts with cutting edge parallel to the shank.

Style S, for holding square inserts with cutting edge at 15° angle to the shank.

The shanks of these tool holders are made of selected alloy steel, carefully heat treated, accurately machined and finished in a Black-Oxide finish. All have a common center—for use on the Armstrong "SELF-INDEXING" Turret Tool. Tool steel seats are ground and hardened to provide a flat base for inserts and to minimize the possibility of damage to inserts as they are clamped in position. A relief groove ground into the seat on negative rake tool holders provides clearance when a dulled insert with "built-up" edges is turned over.

High Speed and Carbide inserts are held in positive rake tool holders at 5° positive rake angle—and cannot be turned over. Carbide inserts are held in negative rake tool holders at 5° negative rake angle—and can be turned over so that cutting edges on both sides may be used. High Speed inserts cannot be used in negative rake tool holders.

Furnished in two styles, as described above. Both styles available with positive or negative rake angles, "Left Hand" or "Right Hand," in three shank sizes. Each tool is boxed separately and includes wrench but neither insert nor chip breaker.

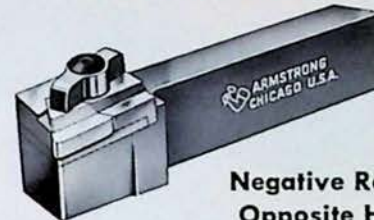
POSITIVE RAKE



Positive Rake—Style TR
Opposite Hand, Style TL

Size of Holder, Inches Wdth. Ht. Lgth.	Style T, Triangular				
	No.		Holds Insert Size Dimen., Inches		Holds Chip Breaker No.
	Style TR Right-Hand	Style TL Left-Hand	I.C.	T	
1/2 x 3/4 x 3 13/16	TR1P	TL1P	3/8	1/8	CTB12
5/8 x 1 x 4 13/16	TR2P	TL2P	1/2	3/16	CTB16
3/4 x 1 1/4 x 6	TR3P	TL3P	1/2	3/16	CTB16

NEGATIVE RAKE



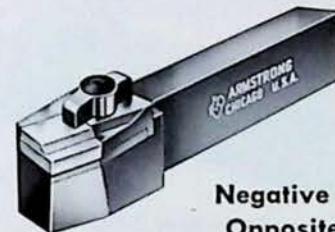
Negative Rake—Style TR
Opposite Hand, Style TL

Size of Holder, Inches Wdth. Ht. Lgth.	Style T, Triangular				
	No.		Holds Insert Size Dimen., Inches		Holds Chip Breaker No.
	Style TR Right-Hand	Style TL Left-Hand	I.C.	T	
1/2 x 3/4 x 3 13/16	TR1N	TL1N	3/8	1/8	CTB12
5/8 x 1 x 5 1/8	TR2N	TL2N	1/2	3/16	CTB16
3/4 x 1 1/4 x 6	TR3N	TL3N	1/2	3/16	CTB16



Positive Rake—Style SR
Opposite Hand, Style SL

Size of Holder, Inches Wdth. Ht. Lgth.	Style S, Square				
	No.		Holds Insert Size Dimen., Inches		Holds Chip Breaker No.
	Style SR Right-Hand	Style SL Left-Hand	A	T	
1/2 x 3/4 x 4	SR1P	SL1P	1/2	1/8	CSQ16
5/8 x 1 x 5 1/8	SR2P	SL2P	3/4	3/16	CSQ24
3/4 x 1 1/4 x 6	SR3P	SL3P	3/4	3/16	CSQ24



Negative Rake—Style SR
Opposite Hand, Style SL

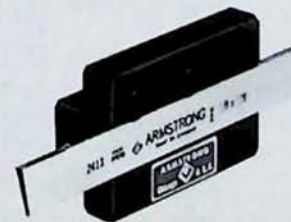
Size of Holder, Inches Wdth. Ht. Lgth.	Style S, Square				
	No.		Holds Insert Size Dimen., Inches		Holds Chip Breaker No.
	Style SR Right-Hand	Style SL Left-Hand	A	T	
1/2 x 3/4 x 3 13/16	SR1N	SL1N	1/2	1/8	CSQ16
5/8 x 1 x 5 1/8	SR2N	SL2N	3/4	3/16	CSQ24
3/4 x 1 1/4 x 6	SR3N	SL3N	3/4	3/16	CSQ24

ARMSTRONG

TURRET CUT-OFF TOOL

Specially designed for use in the Armstrong SELF-INDEXING Turret. Has the same center as the above Insert tool holders so all these tools will automatically be on center when mounted in the turret. No shims or spacers necessary. Finished in a Black-Oxide finish.

Each tool is boxed separately and includes wrench and ground cut-off blade.



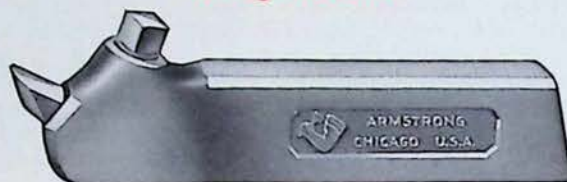
Cat. No.	Shank Size In.	Blade Size In.	For Turret No.	Wt. Lbs.
TU-21	1/2 x 7/8 x 2 3/4	1/8 x 3/4 x 5	TU-3	1.50
TU-22	5/8 x 1 1/2 x 3 3/8	1/8 x 7/8 x 6	TU-4	2.30
TU-23	1 1/16 x 1 3/8 x 4 1/2	3/16 x 1 1/8 x 7	TU-6	4.50



ARMSTRONG TURNING TOOL HOLDERS

ARMSTRONG Turning Tool Holders are drop forged from a special steel and are accurately machined, heat treated and hardened. The set screws are made of heat treated alloy steel with hardened point.

Straight Shank



Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

No.	Size of Holder Inches	Size of Tool Bit Square, Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
000-S	$\frac{5}{16} \times \frac{1}{2} \times 4$	$\frac{3}{16}$	6 to 7	$\frac{1}{2}$	.50
00-S	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{16}$	7 to 10	$\frac{11}{16}$	.50
0-S	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{1}{4}$	10 to 12	$\frac{13}{16}$	.75
1-S	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{5}{16}$	14 to 16	$\frac{11}{16}$	1.50
2-S	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{3}{8}$	16 to 18	$1\frac{1}{4}$	2.25
3-S	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{7}{16}$	18 to 20	$1\frac{15}{32}$	3.50
4-S	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{1}{2}$	24 to 36	$1\frac{21}{32}$	4.75
5-S	1 x 2 x 11	$\frac{5}{8}$	.....	2	7.50
6-S	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$2\frac{7}{16}$	12.00
7-S	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$2\frac{13}{16}$	19.00

Offset



Left-Hand Offset



Right-Hand Offset

Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

†Left-Hand Offset No.	†Right-Hand Offset No.	Size of Holder Inches	Size of Tool Bit Square, Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
000-L	000-R	$\frac{5}{16} \times \frac{1}{2} \times 4$	$\frac{3}{16}$	6 to 7	$\frac{1}{2}$	.50
00-L	00-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{16}$	7 to 10	$\frac{11}{16}$	.50
0-L	0-R	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{1}{4}$	10 to 12	$\frac{13}{16}$	.75
1-L	1-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{5}{16}$	14 to 16	$\frac{11}{16}$	1.50
2-L	2-R	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{3}{8}$	16 to 18	$1\frac{1}{4}$	2.25
3-L	3-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{7}{16}$	18 to 20	$1\frac{15}{32}$	3.50
4-L	4-R	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{1}{2}$	24 to 36	$1\frac{21}{32}$	4.75
5-L	5-R	1 x 2 x 11	$\frac{5}{8}$	.....	2	7.50
6-L	6-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$2\frac{7}{16}$	12.00
7-L	7-R	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$2\frac{13}{16}$	19.00

*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right. †Right-Hand Tools offset to the left.

For best results, use ARMSTRONG High Speed Tool Bits—see page 37.



ARMSTRONG CARBIDE TOOL HOLDERS

For Carbide Tipped Cutters

In ARMSTRONG Carbide Tool Holders, the cutter is held parallel to the shank of the holder which permits grinding the cutter so as to give maximum support to the cutting edge. This feature, together with the great rigidity of ARMSTRONG Tool Holders, is recognized by Carbide Engineers as a prerequisite to the successful application of Carbide Cutters. In addition to its primary use with Carbide-Tipped Cutters, this Tool Holder is widely used as a planer and shaper tool.



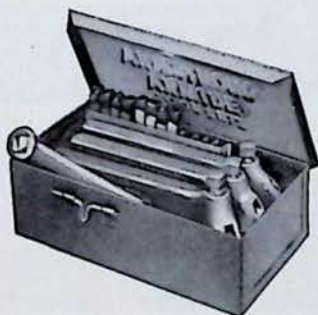
Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened. The set screws are made of treated alloy steel with hardened point. Furnished with hole broached for either square or heavy duty cutters.

Each tool is boxed separately and is furnished *without* tool bit. Wrench is included.

Straight Shank No.	†Left-Hand Offset No.	†Right-Hand Offset No.	Size of Holder Inches	Size of Cutter Square Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approx. Weight Lb.
T-0-S	T-0-L	T-0-R	$\frac{3}{8} \times \frac{15}{16} \times 6$	$\frac{1}{4}$	9 to 10	$\frac{11}{16}$	1.25
T-1-S	T-1-L	T-1-R	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	11 to 14	$\frac{7}{8}$	2.00
T-2-S	T-2-L	T-2-R	$\frac{5}{8} \times 1\frac{1}{2} \times 8$	$\frac{3}{8}$	14 to 16	1	3.25
T-3-S	T-3-L	T-3-R	$\frac{3}{4} \times 1\frac{3}{4} \times 9$	$\frac{7}{16}$	16	$1\frac{1}{8}$	5.00
T-4-S	T-4-L	T-4-R	$\frac{7}{8} \times 1\frac{7}{8} \times 10$	$\frac{1}{2}$	18	$1\frac{1}{4}$	7.00
T-5-S	T-5-L	T-5-R	$1 \times 2\frac{1}{8} \times 12$	$\frac{5}{8}$	20 to 24	$1\frac{3}{8}$	10.50
T-6-S	T-6-L	T-6-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$1\frac{1}{2}$	11.38
T-7-S	T-7-L	T-7-R	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$1\frac{3}{4}$	19.50
T-750-S	T-750-L	T-750-R	$1\frac{5}{8} \times 2\frac{3}{4} \times 18$	1	.....	$1\frac{7}{8}$	25.88

*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right. †Right-Hand Tools offset to the left.



Each set consists of one straight shank, one right-hand and one left-hand offset ARMSTRONG Carbide Tool Holder; and eight ARMIDE Cutters—one each right-hand, left-hand, square nose and 80

ARMSTRONG ARMIDE TOOL SETS

degree ARMIDE grade 78 for cutting steel, and one each right-hand, left-hand, square nose and 80 degree ARMIDE grade 883 for cutting all other materials. Each set is furnished complete with one wrench and steel case.

No.	Size of Holder Inches	Size of Cutter Square, In.	Approx. Weight Lb.
M-0A	$\frac{3}{8} \times \frac{15}{16} \times 6$	$\frac{1}{4}$	3.5
M-1A	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	6.5
M-2A	$\frac{5}{8} \times 1\frac{1}{2} \times 8$	$\frac{3}{8}$	9.0
M-3A	$\frac{3}{4} \times 1\frac{3}{4} \times 9$	$\frac{7}{16}$	13.5
M-4A	$\frac{7}{8} \times 1\frac{7}{8} \times 10$	$\frac{1}{2}$	20.5

For best results use ARMIDE Carbide Tipped Cutters—see pages 40 and 41



ARMSTRONG "C-A" TOOL HOLDERS

For Cast Alloy Tool Bits

In ARMSTRONG "C-A" Tool Holders the tool bit is held parallel to the shank of the holder which permits grinding to the correct rake and clearance and affords maximum support to the cutting edge.

The set screw pressure is distributed over a large area by means of a heavy tool steel gib movably set between tool bit and screw point. This feature is combined with the usual ARMSTRONG qualities of great strength and compactness.

Each tool drop forged from a special steel, accurately machined, heat treated and hardened. The set screws are made of treated alloy steel with hardened point.



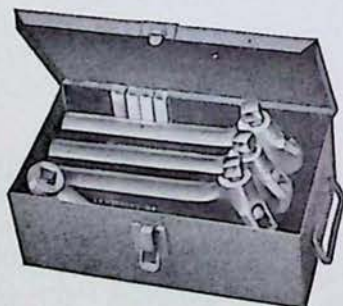
Each tool is boxed separately and is furnished *without* tool bit. Wrench is included.

Straight Shank No.	†Left-Hand Offset No.	‡Right-Hand Offset No.	Size of Holder Inches	Size of Tool Bit Square Inches	Length of Tool Bit Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
XX-0-S	XX-0-L	XX-0-R	$\frac{3}{8} \times \frac{15}{16} \times 5\frac{1}{2}$	$\frac{1}{4}$	$2\frac{1}{8}$	9 to 10	$\frac{1}{16}$	1.25
XX-1-S	XX-1-L	XX-1-R	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	$2\frac{1}{2}$	11 to 14	$\frac{7}{8}$	1.75
XX-2-S	XX-2-L	XX-2-R	$\frac{5}{8} \times 1\frac{1}{2} \times 7\frac{7}{8}$	$\frac{3}{8}$	3	14 to 16	1	3.00
XX-3-S	XX-3-L	XX-3-R	$\frac{3}{4} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{7}{16}$	$3\frac{1}{2}$	16	$\frac{1}{8}$	4.50
XX-4-S	XX-4-L	XX-4-R	$\frac{7}{8} \times 1\frac{7}{8} \times 9\frac{7}{8}$	$\frac{1}{2}$	4	18	$\frac{1}{4}$	6.50
XX-5-S	XX-5-L		$1 \times 2\frac{1}{8} \times 11\frac{3}{4}$	$\frac{5}{8}$	$4\frac{1}{2}$	20 to 24	$\frac{1}{8}$	10.00

*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right. ‡Right-Hand Tools offset to the left.

ARMSTRONG "C-A" TOOL SETS



ARMSTRONG "C-A" Sets are available in five sizes. Each set consists of one straight shank, one right-hand and one left-hand offset ARMSTRONG "C-A" Tool Holder and four ARMALLOY tool bits. Set is furnished with one wrench and steel case.

No.	Size of Holder Inches	Size of Tool Bit Square, In.	Approx. Weight Lb.
0466	$\frac{3}{8} \times \frac{15}{16} \times 5\frac{1}{2}$	$\frac{1}{4}$	3.5
0467	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	6.5
0468	$\frac{5}{8} \times 1\frac{1}{2} \times 7\frac{7}{8}$	$\frac{3}{8}$	9.0
0469	$\frac{3}{4} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{7}{16}$	13.5
0470	$\frac{7}{8} \times 1\frac{7}{8} \times 9\frac{7}{8}$	$\frac{1}{2}$	20.5



ARMSTRONG CUTTING-OFF TOOLS

The ARMSTRONG system is especially efficient and economical when applied to cutting-off in a lathe as the blade is adjustable to any desired clearance and the greatest support possible is obtainable under all conditions.

Straight Shank



Blades are beveled on both sides, held at an angle, giving side clearance and top rake needed to obtain a clean, smooth cut.

Drop forged from special steel, accurately machined, heat treated, hardened. Each tool boxed separately; includes wrench and one ARMSTRONG High Speed cut-off blade.

Left-Hand Offset



Right-Hand Offset



Straight Shank		Offset			Size of Cut-Off Blade Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nom. Height from Bottom of Shank to Blade Point, In.	Approx. Weight Lb.
No.	Size of Holder Inches	Left-Hand No.	Right-Hand No.	Size of Holder Inches				
19	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	29-L	29-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{32} \times \frac{1}{2}$	6 to 8	$\frac{5}{8}$	.63
20	$\frac{3}{8} \times \frac{7}{8} \times 5$	30-L	30-R	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{3}{32} \times \frac{5}{8}$	9 to 10	$\frac{3}{4}$	.75
21	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	31-L	31-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{1}{8} \times \frac{3}{4}$	11 to 14	$\frac{7}{8}$	1.25
22	$\frac{5}{8} \times 1\frac{1}{8} \times 7$	32-L	32-R	$\frac{5}{8} \times 1\frac{1}{8} \times 7$	$\frac{1}{8} \times \frac{7}{8}$	14 to 16	$1\frac{1}{16}$	2.25
23	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	33-L	33-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{3}{16} \times 1$	16	$1\frac{1}{4}$	3.25
24	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	34-L	34-R	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{3}{16} \times 1\frac{1}{8}$	18	$1\frac{1}{2}$	4.50
25	1 x 2 x 10	35-L	35-R	1 x 2 x 10	$\frac{1}{4} \times 1\frac{1}{4}$	20 to 24	$1\frac{11}{16}$	6.50
26	$1\frac{1}{4} \times 2\frac{1}{4} \times 11$	36-L	36-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 11$	$\frac{1}{4} \times 1\frac{3}{8}$	30 to 36	$1\frac{13}{16}$	9.00

ARMSTRONG SPRING CUTTING-OFF TOOLS

Cutting off in a lathe, regarded as the hardest of lathe work, has been made comparatively simple by this tool. Its "goose neck" form gives the blade a resiliency that takes up any chatter and keeps the work from climbing up on tool—the cause of practically all cutting-off tool breakage. Cut-off blade adjustable to any desired clearance.

Straight Shank



Each tool is drop forged from special steel, accurately machined, heat treated, hardened, and boxed separately; includes wrench and one ARMSTRONG High Speed cut-off blade.

Blades are beveled on both sides, held at an angle, giving side clearance and top rake to obtain a clean, smooth cut.

Left-Hand Offset



Right-Hand Offset



Straight Shank		Offset			Size of Cut-Off Blade Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nom. Height from Bottom of Shank to Blade Point, In.	Approx. Weight Lb.
No.	Size of Holder Inches	Left-Hand No.	Right-Hand No.	Size of Holder Inches				
S-20	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	S-30-L	S-30-R	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{3}{32} \times \frac{5}{8}$	9 to 10	$\frac{3}{4}$	.75
S-21	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{5}{8}$	S-31-L	S-31-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{5}{8}$	$\frac{1}{8} \times \frac{3}{4}$	11 to 14	$1\frac{5}{16}$	1.50
S-22	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	S-32-L	S-32-R	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{1}{8} \times \frac{7}{8}$	14 to 16	$1\frac{3}{16}$	2.25
S-23	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{3}{8}$	S-33-L	S-33-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{3}{8}$	$\frac{3}{16} \times 1$	16	$1\frac{7}{16}$	3.50

*As there is a wide variation in the proportion of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG tools of different sizes. Tool posts should be carefully measured before ordering tools.

For best results, use ARMSTRONG High Speed Cut-Off Blades—see page 38.



ARMSTRONG SIDE TOOLS

The ARMSTRONG Side Tool design is typical of the entire ARMSTRONG system of Tool Holders, embodying convenience, simplicity and strength. Drop forged from a special steel, accurately machined, heat treated and hardened.

Right-Hand Straight Shank



Right-Hand Offset



Each tool boxed separately; includes wrench and one ARMSTRONG High Speed side tool blade.

Right-Hand Straight Shank No.	Right-Hand Offset No.	Size of Holder Inches	Size of Side Tool Blade Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Blade Point, Inches	Approx. Weight Lb.
79-R	69-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{3}{8}$	$\frac{1}{8} \times \frac{1}{2}$	6 to 8	$\frac{9}{16}$	.63
80-R	70-R	$\frac{3}{8} \times \frac{7}{8} \times 4\frac{7}{8}$	$\frac{5}{32} \times \frac{5}{8}$	9 to 10	$\frac{11}{16}$	.75
81-R	71-R	$\frac{1}{2} \times 1\frac{1}{8} \times 5\frac{1}{8}$	$\frac{3}{16} \times \frac{3}{4}$	11 to 14	$\frac{15}{16}$	1.50
82-R	72-R	$\frac{5}{8} \times 1\frac{3}{8} \times 6\frac{7}{8}$	$\frac{1}{4} \times \frac{7}{8}$	14 to 16	$1\frac{1}{8}$	2.25
83-R	73-R	$\frac{3}{4} \times 1\frac{5}{8} \times 7\frac{1}{8}$	$\frac{5}{16} \times 1$	16	$1\frac{1}{4}$	3.50
84-R	74-R	$\frac{7}{8} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{3}{8} \times 1\frac{1}{4}$	18	$1\frac{3}{8}$	6.00

ARMSTRONG BORING TOOLS

The holder of each tool is drop forged from a special steel and is accurately machined, heat treated and hardened.

Each tool is boxed separately and includes holder and one Plain Boring Bar with 90° broached angle at one end and 45° broached angle at the opposite end. Two Armstrong High Speed tool bits and hollow set screw wrench are also included.



Designed for use in ARMSTRONG Self-Indexing Turret Tool posts, lathes of British and European make having clamp tool rest and American lathes of similar design.

Each tool is boxed separately and includes holder and one Plain Boring Bar with 90° broached angle at one end and 45° broached angle at the opposite end.

Two ARMSTRONG High Speed tool bits and hollow set screw wrench are also included.



No.	Size of Holder Inches	Size of Tool Bit Square, Inches	Diameter of Bar Inches	For Lathes, *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Center Inches	Approximate Weight Lb.
7	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{7}{8}$	$\frac{3}{16}$	$\frac{1}{2}$	6 to 8	$\frac{3}{4}$	1.50
8	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{3}{8}$	$\frac{3}{16}$	$\frac{9}{16}$	9 to 10	$\frac{7}{8}$	1.75
9	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{4}$	11 to 14	$1\frac{1}{8}$	3.75
10	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{8}$	$\frac{5}{16}$	$1\frac{1}{16}$	14 to 16	$1\frac{1}{4}$	6.50
11	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{1}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	16	$1\frac{1}{2}$	11.00
12	$\frac{7}{8} \times 1\frac{3}{4} \times 9\frac{3}{4}$	$\frac{7}{16}$	$1\frac{5}{16}$	18	$1\frac{5}{8}$	17.00
13	1 x 2 x $11\frac{1}{8}$	$\frac{1}{2}$	$1\frac{1}{2}$	20 to 24	$1\frac{3}{4}$	25.00

Cat. No.	Size of Holder inches	Size of Tool Bit Inches	Diameter of Bar Inches	Nominal Height from Bottom of Holder to Center Inches	Approx. Weight Lb.
108	$\frac{3}{4} \times \frac{7}{8} \times 3\frac{1}{4}$	$\frac{3}{16}$	$\frac{9}{16}$	$\frac{7}{16}$	1.5
109	1 x $1\frac{1}{8} \times 4\frac{3}{8}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{9}{16}$	3.0
110	$1\frac{1}{4} \times 1\frac{3}{8} \times 5\frac{3}{8}$	$\frac{5}{16}$	$1\frac{1}{16}$	$\frac{11}{16}$	5.5
111	$1\frac{1}{2} \times 1\frac{5}{8} \times 6\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{8}$	$\frac{13}{16}$	9.0
112	$1\frac{3}{4} \times 1\frac{7}{8} \times 7\frac{3}{8}$	$\frac{7}{16}$	$1\frac{5}{16}$	$\frac{15}{16}$	15.0
113	2 x $2\frac{1}{8} \times 8\frac{1}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{16}$	20.0

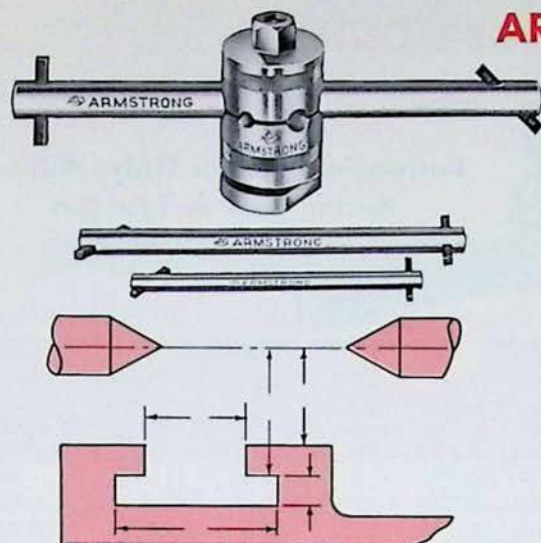
For boring bar bushings to bush small size bars to larger holders, see boring tool bushings, described on page 11.

*As there is a wide variation in the proportion of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG tools of different sizes. Tool posts should be carefully measured before ordering tools.

For best results, use ARMSTRONG High Speed Side Tool Blades—see page 39



ARMSTRONG 3-BAR BORING TOOLS



Fitting: An extra charge will be made for fitting holders to the lathe on which the tool is to be used. Dimensions, as shown in the above drawing, should be furnished when ordering a fitted boring tool.

Note: Bolt head and bottom part of holder are made of ample size to allow for fitting which is necessary on account of the great variation in height of centers above slide rest and difference in sizes of T slots.

A slight turn of one nut allows bars to be changed as needed instantly, thus allowing the operator to use the stiffest bar possible for each job with the result that speeds and feeds can be increased and time saved.

Each tool is boxed separately and includes holder and one Plain Boring Bar with 90° broached angle at one end and 45° broached angle at the opposite end. Two Armstrong High Speed tool bits and hollow set screw wrenches are also included.

No. 00-B is furnished with one forged type $\frac{3}{8}$ " dia. boring bar, two plain boring bars, 4 high speed tool bits and hollow set screw wrenches.

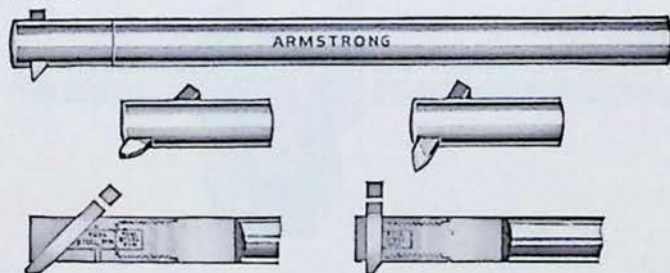
No.	Diameter of Bars Inches	Length of Bars Inches	Size Tool Bits Square, Inches	For Lathes *Approx. Swing Inches	Nom. Ht. from Bottom to Ctr. of Holder Inches	Diam. of Holder	Approx. Wt. Lb.
00-B	$\frac{3}{8}, \frac{1}{2}, \frac{3}{4}$	7, 8, 11	$\frac{3}{16}, \frac{1}{4}$	8 to 10	$1\frac{1}{2}$	2	8
0-B	$\frac{1}{2}, \frac{3}{16}, \frac{3}{4}$	8, 9, 11	$\frac{3}{16}, \frac{3}{16}, \frac{1}{4}$	11 to 14	$1\frac{7}{8}$	$2\frac{1}{2}$	12
1-B	$\frac{1}{2}, \frac{3}{4}, 1\frac{1}{8}$	8, 11, 16	$\frac{3}{16}, \frac{1}{4}, \frac{3}{8}$	12 to 16	$2\frac{1}{8}$	$3\frac{1}{8}$	18
2-B	$\frac{9}{16}, \frac{15}{16}, 1\frac{1}{2}$	9, 13, 18	$\frac{3}{16}, \frac{5}{16}, \frac{7}{16}$	16 to 18	$2\frac{1}{2}$	$3\frac{1}{2}$	27
3-B	$\frac{3}{4}, 1\frac{1}{8}, 1\frac{1}{2}$	11, 16, 23	$\frac{1}{4}, \frac{3}{8}, \frac{1}{2}$	20 to 22	$2\frac{7}{8}$	$4\frac{1}{4}$	50
4-B	$1\frac{1}{8}, 1\frac{1}{2}, 1\frac{3}{4}$	13, 18, 28	$\frac{5}{16}, \frac{3}{8}, \frac{1}{2}$	24 to 32	$3\frac{1}{4}$	$4\frac{7}{8}$	75

* $\frac{3}{8}$ " bar is solid.

ARMSTRONG BORING BARS

For Use in ARMSTRONG Boring Tools
END CAP PATTERN BARS

For boring, facing and internal threading, the ARMSTRONG End Cap Pattern Boring Bar is unexcelled. The end cap locks the tool bit rigidly under a tool steel automatic set screw which cannot loosen while the tool is cutting, yet instantly releases the tool bit for removal. The end caps are interchangeable without removing the bar from the holder.

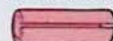


Each bar is boxed separately and includes 90°, 45° and 30° end caps, three ARMSTRONG High Speed tool bits and double head wrench.

No.	DIMENSIONS OF BAR		Size Tool Bit Inches	Approximate Weight Lb.
	Diameter Inches	Approx. Length Inches		
07-A	$\frac{1}{2}$	8	$\frac{3}{16}$	.75
08	$\frac{9}{16}$	9	$\frac{3}{16}$	1.00
09	$\frac{3}{4}$	11	$\frac{1}{4}$	2.25
010-A	$\frac{15}{16}$	13	$\frac{5}{16}$	4.50
011	$1\frac{1}{8}$	16	$\frac{3}{8}$	7.00
012	$1\frac{1}{4}$	18	$\frac{7}{16}$	11.00
013	$1\frac{1}{2}$	23	$\frac{1}{2}$	15.00
014	$1\frac{3}{4}$	28	$\frac{5}{8}$	23.00

BORING TOOL BUSHINGS

Boring Tool Bushings are used to bush small size bars to larger holders. When ordering, please specify bushing number. Bushings listed for tool Nos. 8, 9, 10 can also be used in tool Nos. 108, 109, 110, etc.



Bushings No.			For Tool No.	
For Std. Tools	For Quick Change	For Bar Dia. In.	Std. Tool	Quick Change
8179		$\frac{1}{2}$	9	
8180		$\frac{1}{2}$	10	
8184	4G-184	$\frac{9}{16}$	9	4G1-QC
8185		$\frac{9}{16}$	10	
8186		$\frac{9}{16}$	11	
8189	4G-289	$\frac{3}{4}$	10	5G1-QC
8190	4G-289	$\frac{3}{4}$	11	6G1-QC
8191	4G-289	$\frac{3}{4}$	12	4G2-QC
8193	5G-293	$\frac{15}{16}$	11	5G2-QC
8194	5G-293	$\frac{15}{16}$	12	6G2-QC
8195	8G-193	$\frac{15}{16}$	13	8G1-QC
8196	8G-296	$1\frac{1}{8}$	12	8G2-QC
8198		$1\frac{1}{8}$	13	

BORING TOOL ACCESSORIES

When ordering, be sure to specify catalog number.



For Boring Bar Diam. Inches	Part No.	Part No.	Part No.	Approx. Weight Lb.
$\frac{1}{2}$	8001-A	8021-A	8041-A	.06
$\frac{9}{16}$	8002	8022	8042	.13
$\frac{3}{4}$	8003	8023	8043	.25
$\frac{15}{16}$	8004-A	8024-A	8044-A	.50
$1\frac{1}{8}$	8005	8025	8045	.63
$\frac{15}{16}$	8006	8026	8046	1.06
$1\frac{1}{2}$	8007	8027	8047	1.44
$1\frac{3}{4}$	8008	8028	8048	2.50



ARMSTRONG BORING TOOL HOLDER

For Light Boring, Threading and Turning

This tool will be found very handy in the tool room for boring work of small internal diameter, threading, brass turning, etc. The holder is reversible, and can be used for turning either right or left hand, since the floating tool steel gib allows the yoke to clear the end of the holder.

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened.

Each tool is boxed separately and includes necessary wrench.



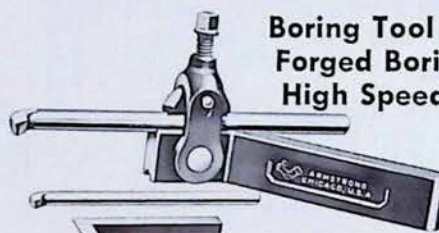
Boring Tool Holder Only, Without Boring Bars or Tool Bits

No.	Size of Holder Inches	WILL ACCOMMODATE		Approx. Weight Lb.
		Boring Bars, Diameter Inches	Square Bits, Size Inches	
15	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{1}{4}$	.88
16	$\frac{1}{2} \times 1$	$\frac{3}{16}$ & $\frac{5}{16}$	$\frac{5}{16}$	1.56
17	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{8}$	2.31
18	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{5}{16}$ & $\frac{7}{16}$	$\frac{7}{16}$	3.61



Boring Tool Holder with Two Clamp Boring Bars and Four High Speed Round Tool Bits

No.	Size of Holder Inches	Cutter Clamp Bars, Diameter Inches	Round Tool Bit, Diameter Inches	Approx. Weight Lb.
15-C	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{3}{32}$	1.02
16-C	$\frac{1}{2} \times 1$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{1}{8}$	1.89
17-C	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{3}{16}$	2.61
18-C	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{1}{4}$	3.91



Boring Tool Holder with Two Forged Boring Bars and One High Speed Square Tool Bit

No.	Size of Holder Inches	Forged Bars, Diameter Inches	Square Bits, Size Inches	Approx. Weight Lb.
15-F	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{1}{4}$	1.00
16-F	$\frac{1}{2} \times 1$	$\frac{3}{16}$ & $\frac{5}{16}$	$\frac{5}{16}$	1.75
17-F	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{8}$	2.75
18-F	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{5}{16}$ & $\frac{7}{16}$	$\frac{7}{16}$	4.50

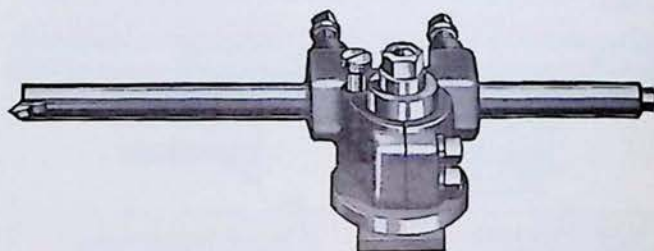
ARMSTRONG ADJUSTABLE BORING TOOL

This tool combines convenience, adjustability and rigidity to a remarkable degree and is well adapted to a very wide range of work.

The holder is easily adjustable to different heights and will hold bars of various diameters. The bars are made from high carbon steel seamless tubing of heavy gauge and are extremely stiff.

The tool bit can be adjusted and solidly fixed at various angles for boring, facing or turning.

Each tool is boxed separately; includes holder, one bar, two ARMSTRONG High Speed tool bits, wrench.



ADJUSTABLE BORING BARS

Includes one bar of size specified, two ARMSTRONG High Speed tool bits and wrench.

No.	Capacity of Holder Diameter Bars Inches	Size Bar Furnished Inches	Size Tool Bit Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
212	$\frac{3}{4}$ to $1\frac{1}{16}$	$1\frac{1}{16} \times 21$	$\frac{3}{8}$	14 to 18	25
213	$\frac{3}{4}$ to $1\frac{1}{2}$	$1\frac{1}{2} \times 24$	$\frac{1}{2}$	16 to 20	38
214	$\frac{3}{4}$ to $1\frac{13}{16}$	$1\frac{13}{16} \times 28$	$\frac{1}{2}$	18 to 24	75
215	$\frac{3}{4}$ to $2\frac{1}{4}$	$2\frac{1}{4} \times 36$	$\frac{5}{8}$	20 to 36	120

Note: Bolt head is made large enough to allow for fitting to T slots of various sizes.

Fitting: An extra charge will be made for fitting bolt head to special dimensions. Dimensions, as shown in the drawing under the illustration of 3-Bar Boring Tool (page 11), should be furnished when ordering a fitted tool.

No.	SIZE OF BAR		Size Tool Bit Square, Inches	Approx. Weight Lb.
	Diameter Inches	Length Inches		
0521	$\frac{3}{4}$	14	$\frac{3}{16}$	1.75
0522	$1\frac{1}{16}$	16	$\frac{1}{4}$	3.25
0523	$1\frac{1}{8}$	18	$\frac{5}{16}$	5.00
0524	$1\frac{5}{16}$	21	$\frac{3}{8}$	7.50
0525	$1\frac{1}{2}$	24	$\frac{7}{16}$	11.00
0526	$1\frac{13}{16}$	28	$\frac{1}{2}$	19.00
0527	$2\frac{1}{4}$	36	$\frac{5}{8}$	38.00



ARMSTRONG BORING BARS

For Use in ARMSTRONG Boring Tools

PLAIN BARS



The ARMSTRONG Plain Boring Bar has one end broached at 90° angle and the opposite end broached at 45° angle for square tool bits.

Each ARMSTRONG boring bar is machined from a selected steel and is accurately broached.

Each bar is boxed separately and includes two ARMSTRONG High Speed tool bits and hollow set screw wrench.

For boring bar bushings to bush small size bars to larger holders, see boring tool bushings described on page 11.

No.	DIMENSIONS OF BAR		Size Tool Bit Inches	Approximate Weight Lb.
	Diameter Inches	Length Inches		
07-X	1/2	8	3/16	.75
08-X	5/16	9	3/16	1.00
09-X	3/4	11	1/4	2.25
010-X	15/16	13	5/16	4.50
011-X	1 1/8	16	3/8	4.75
012-X	1 5/16	18	7/16	7.50
013-X	1 1/2	23	1/2	13.00
014-X	1 13/16	28	5/8	23.00

CLAMP BORING BARS



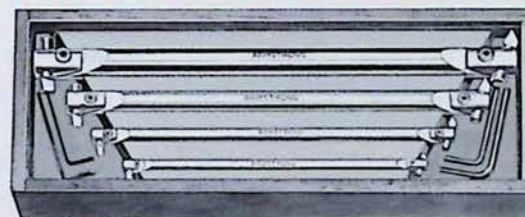
The ARMSTRONG Clamp Boring Bar is designed to hold tool bits at extreme ends of bar without interference of set screws or bolts. One bit is held at an angle of 15°, the other at 90°.

The ARMSTRONG clamp boring bar is made from selected steel.

Each bar is boxed separately and includes two ARMSTRONG High Speed round tool bits (one ground for boring, one for threading) and a hollow screw wrench.

No.	DIMENSIONS		Tool Bit Diameter Inches	For Use with Boring Tool Holder	Approx. Weight Lb.
	Diam. Inches	Length Inches			
951	3/16	5	3/32	15	.06
952	1/4	6	1/8	15 or 16	.08
953	3/8	7	3/16	16 or 17	.25
954	1/2	8	1/4	16, 17 or 18	.50

SET NO. CB-4 CLAMP BORING BARS



Set consists of four bars in fitted wooden box, one each 3/16, 1/4, 3/8 and 1/2" bars (see above), eight round tool bits, and four hollow screw wrenches.

Approximate weight, 1.17 lb.

FORGED BORING BARS



These Boring Bars are forged from the best high speed steel, properly hardened, tempered and ground to shape ready for finish grinding.

Packed five of a size in a box.

No.	8140	8141	8142	8143	8144	8145
Diameter...inches	1/8	3/16	1/4	5/16	3/8	7/16
Length....inches	4	4 1/2	5	6	7	8
Approx. Wt....lb.	.02	.03	.06	.13	.25	.38

HIGH SPEED ROUND TOOL BITS

For Use in ARMSTRONG Clamp Boring Bars

ARMSTRONG High Speed Round Tool Bits are made of a superior grade of high speed steel; carefully heat treated, hardened, tempered and tested. Bits are furnished ground for boring or threading, as listed.



Boring Bit No.	Threading Bit No.	Diameter Bit Inches	For Use with Bar No.	Approx. Weight Lb.
951-B	951-T	3/32	951	.04
952-B	952-T	1/8	952	.10
953-B	953-T	3/16	953	.18
954-B	954-T	1/4	954	.25



ARMSTRONG THREADING TOOLS

For Formed Cutters

A Threading Tool is essentially a forming tool and any error or inaccuracy of shape or angle in the tool point will surely be reproduced in the thread and must result in poorly fitted work.



The cutters used in the ARMSTRONG Threading Tool require grinding on the top edge only to sharpen and therefore always remain true to form and of correct angle; their use insures perfect fitting threads and saves much grinding.

The cutters are backed off to afford proper clearance. The back of the cutter is eccentric in form and bears upon a hardened stop screw. This arrangement permits positive and accurate adjustment after grinding.

Drop forged from a special steel, accurately machined, heat treated and hardened, each tool is boxed separately and includes wrench and one ARMSTRONG High Speed Sharp V-thread cutter.

No.	Size of Holder, Inches	For Lathes Approximate Swing, Inches (Inclusive)	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approximate Weight, Lb.
00T	$\frac{5}{16} \times \frac{3}{4} \times 5$	7 to 10	$\frac{3}{4}$	.75
50	$\frac{3}{8} \times \frac{7}{8} \times 5$	10 to 12	$\frac{7}{8}$	.88
51	$\frac{1}{2} \times 1 \frac{1}{8} \times 6$	14 to 16	$1 \frac{1}{8}$	1.50
52	$\frac{5}{8} \times 1 \frac{3}{8} \times 7$	16 to 18	$1 \frac{3}{8}$	2.25
53	$\frac{3}{4} \times 1 \frac{5}{8} \times 8$	18 to 20	$1 \frac{3}{4}$	3.50
54	$\frac{7}{8} \times 1 \frac{3}{4} \times 9$	24 to 36	$1 \frac{7}{8}$	4.25

ARMSTRONG SPRING THREADING TOOLS

For Formed Cutters



The ARMSTRONG Spring Threading Tool is designed to combine strength and convenience of adjustment and operation with the resiliency necessary in obtaining a smooth, finished thread especially on alloy steels of an extremely tough nature.

Cutters have same features described above.

Each tool is drop forged from a special steel, accurately machined, heat treated, hardened.

Each tool is boxed separately and includes wrench

and one ARMSTRONG High Speed Sharp V-thread cutter.

No.	Size of Holder, Inches (Inclusive)	For Lathes Approximate Swing, Inches	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approx. Weight, Lb.
NS-50	$\frac{3}{8} \times \frac{7}{8} \times 5 \frac{1}{2}$	10 to 12	$\frac{7}{8}$	.75
NS-51	$\frac{1}{2} \times 1 \frac{1}{8} \times 6 \frac{1}{2}$	14 to 16	$1 \frac{1}{4}$	1.63
NS-52	$\frac{5}{8} \times 1 \frac{3}{8} \times 7 \frac{1}{2}$	16 to 18	$1 \frac{3}{8}$	3.00
NS-53	$\frac{3}{4} \times 1 \frac{5}{8} \times 8 \frac{1}{2}$	18 to 20	$1 \frac{3}{8}$	4.44



ARMSTRONG SPRING THREADING TOOLS

For Square Cutters

The ARMSTRONG Spring Threading Tool is designed to combine strength and convenience of adjustment and operation with the resiliency which is considered by many machinists to be helpful in obtaining a smooth finishing cut or thread, especially on tough alloy steels.

Convenient means is also provided for obtaining complete rigidity when desired as, for instance in taking a roughing cut or doing an ordinary job of turning. The cutter can be held at different angles as shown.

High Speed threading cutters for this tool are furnished ground to Sharp V-thread form.

Any other form required may be quickly ground to shape from standard ARMSTRONG High Speed tool bits.



The cutter can be held at different angles as shown above.

Drop forged from a special steel, accurately machined, heat treated, hardened. Each tool is boxed separately and includes one ARMSTRONG High Speed Sharp V-thread cutter and wrench. Extra Square Threading Cutters are described below.

No.	Size of Holder, Inches	Size of Cutter Square, Inches	For Lathes Approximate Swing, Inches	Nominal Height from Shank to Cutter Point, Inches	Approx. Weight, Lb.
S-50	$\frac{3}{8} \times \frac{1}{8} \times 5\frac{1}{2}$	$\frac{1}{4}$	10 to 12	$\frac{5}{8}$	.50
S-51	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{5}{16}$	14 to 16	$\frac{3}{4}$	1.00
S-52	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{8}$	16 to 18	$1\frac{1}{16}$	2.00
S-53	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{1}{2}$	$\frac{1}{2}$	18 to 20	$1\frac{3}{8}$	3.25

ARMSTRONG FORMED THREADING CUTTERS

Made from Selected High Speed Steel

ARMSTRONG Formed Cutters for use with ARMSTRONG Threading Tools are drop forged from selected High Speed Steel.

Grinding and Adjusting Cutters



Always grind the cutter on a line from the point to the center, as indicated by the dotted lines in the accompanying outline view of cutter, then adjust the cutter so that the newly ground cutting edge represented by dotted lines is in a horizontal position or parallel to the line A—A. When fastening the cutter in position first see that adjusting screw is firmly set against heel of cutter before pulling up nut.



For Tool No.	00T, 50 & NS-50	51 & NS-51	52 & NS-52	53, NS-53 & 54
Sharp V-Thread	No. 8151	No. 8153	No. 8155	No. 8157

ARMSTRONG SQUARE THREADING CUTTERS

ARMSTRONG Square Threading Cutters in treated High Speed Steel are furnished ground to Sharp V-thread form and have all four sides accurately ground, ready for use in ARMSTRONG Spring Threading Tools described above.

For Tool No.	S-50	S-51	S-52	S-53
Size of Cutter.....inches	$\frac{1}{4} \times \frac{1}{4} \times 2\frac{1}{2}$	$\frac{5}{16} \times \frac{5}{16} \times 2\frac{1}{2}$	$\frac{3}{8} \times \frac{3}{8} \times 3$	$\frac{1}{2} \times \frac{1}{2} \times 3\frac{1}{2}$
No. of Cutter	8101	8102	8103	8104
Approx. Weight.....lb.	.03	.06	.13	.19



ARMSTRONG KNURLING TOOLS

The ARMSTRONG Knurling Tool is self centering and the knuckle or joint has ample bearing to resist the severe strains of both end and side thrust. In these essentials, this tool is unexcelled. Knurl pins are accurately made of tool steel suitably tempered. Knurls are hob cut from High Speed Steel and

heat treated. All other parts are drop forged or bar steel, hardened. Standard face medium diamond knurls always furnished unless otherwise ordered. Tools can be furnished with either diamond or straight line knurls, standard or full face, fine, medium or coarse pitch. Each tool is separately boxed.



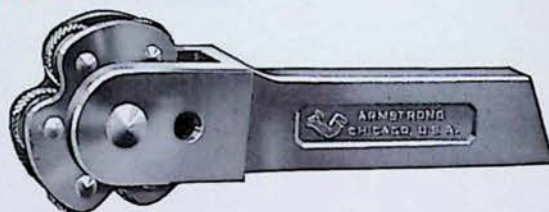
No.	Size of Holder Inches	DIMEN. OF KNURLS			Knurling Capacity Diameter Inches	For Lathes Approx. Swing Inches	Approx. Weight Lb.
		Diam. Inches	Face (Std.) Inches	Hole Inches			
00-K	$\frac{5}{16} \times \frac{3}{4} \times 5$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{32}$	$\frac{1}{8}$ Up	7 to 10	.6
0-K	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{32}$	$\frac{1}{8}$ Up	10 to 12	.9
1-K	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{16}$ Up	14 to 16	1.5
2-K	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{16}$ Up	16 to 18	2.0
4-K	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	1	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{1}{4}$ Up	24 to 36	4.0

Extra Knurls are listed on page 17.

With Revolving Head

The advantages of this tool are apparent at a glance. Revolving head is fitted with three pairs of knurls, fine, medium and coarse, any of which can be used without the inconvenience and loss of time incident to changing knurls. Knurl pins are accurately made of tool steel suitably tempered. Knurls are hob cut from High Speed Steel and heat treated. All other parts are drop forged or bar steel, hardened.

Standard face medium diamond knurls are always furnished unless otherwise ordered.



Tools can be furnished with either diamond or straight line knurls, standard or full face, fine, medium or coarse pitch. Each tool is boxed separately.

Extra Knurl Pins

When ordering, specify by catalog No.

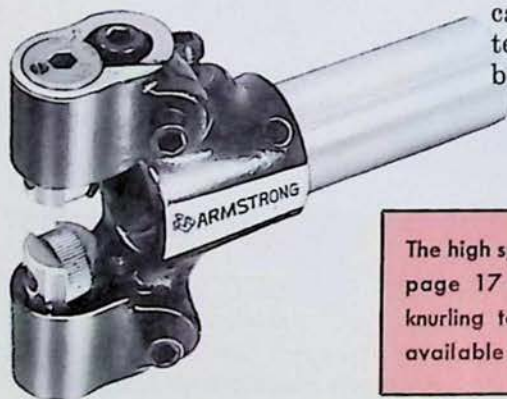
No.	Size of Holder Inches	DIMEN. OF KNURLS			Knurling Capacity Diameter Inches	For Lathes Approx. Swing Inches	Approx. Weight Lb.
		Diam. Inches	Face (Std.) Inches	Hole Inches			
3-K-00	$\frac{5}{16} \times \frac{3}{4} \times 5$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{32}$	$\frac{3}{16}$ Up	7 to 10	1.00
3-K-0	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{32}$	$\frac{3}{16}$ Up	10 to 12	1.25
3-K-1	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$ Up	14 to 16	2.00
3-K-2	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$ Up	16 to 18	2.50

Pair No.	For Tool No.	Pair No.	For Tool No.	Pair, Approx. Wt., Lb.
8095	3-K-00, 3-K-0	8097	00-K, 0-K	.02
8096	3-K-1, 3-K-2	8098	1-K, 2-K	.03
		8099	4-K	.05

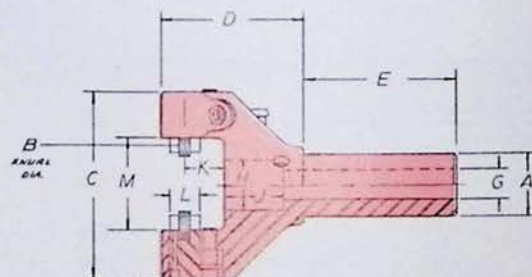
KNURLING TOOLS

For Turret Lathes and Screw Machines

This style tool has the advantage of opposed knurls that prevent work deflection. It's rugged—yet compact. One hex wrench makes all adjustments for quicker set up time. Knurls can be adjusted to produce straight, diagonal, or diamond pattern knurls. Furnished with carbide knurl pins. Each tool is boxed separately.



The high speed knurls shown on page 17 do not fit KT style knurling tool. Extra knurls are available on special order.



KNURLING TOOL SPECIFICATIONS

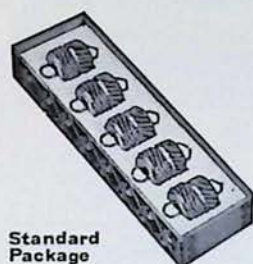
Tool No.	A	B Knurl Size	C	D	E	G	H	J	K	L	M	Br. Lgh.	Cap. Dia.
KT00	$\frac{5}{8}$	$\frac{1}{2} \times \frac{3}{16} \times \frac{3}{16}$	$1\frac{15}{16}$	$1\frac{21}{32}$	$1\frac{1}{8}$	$\frac{5}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$1\frac{15}{32}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{7}{8}$	$\frac{1}{2}$
KT1	$\frac{3}{4}$	$\frac{5}{8} \times \frac{1}{4} \times \frac{1}{4}$	$2\frac{15}{32}$	$2\frac{1}{4}$	$1\frac{7}{8}$	$\frac{7}{16}$	$\frac{5}{8}$	$\frac{7}{8}$	$\frac{3}{4}$	$1\frac{1}{16}$	1	$1\frac{1}{16}$	$\frac{3}{4}$
KT2	1	$\frac{5}{8} \times \frac{1}{4} \times \frac{1}{4}$	$3\frac{5}{16}$	$2\frac{11}{16}$	$2\frac{3}{16}$	$\frac{5}{8}$	1	$1\frac{1}{4}$	$2\frac{3}{32}$	$1\frac{1}{16}$	$1\frac{3}{8}$	$1\frac{5}{16}$	$\frac{7}{8}$
KT3	$1\frac{1}{4}$	$\frac{5}{8} \times \frac{1}{4} \times \frac{1}{4}$	4	$4\frac{1}{4}$	$3\frac{1}{4}$	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	2	$1\frac{1}{16}$	$2\frac{1}{16}$	$1\frac{5}{16}$	$\frac{1}{2}$ to $1\frac{3}{8}$



ARMSTRONG HIGH SPEED STEEL KNURLS

ARMSTRONG Knurls are individually hob-cut to obtain sharp, perfectly formed teeth in every knurl. Consequently these knurls produce work of uniform precision. Held within close limits of accuracy for thickness and for diameter of hole which is always concentric under hob-cut method of manufacture. Cut from high speed steel, heat treated, tempered and tested.

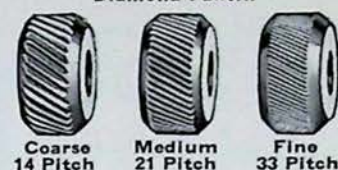
Knurls are furnished in pairs to fit all standard makes of knurling tools, in diamond or straight line pattern, either standard or full face. When ordering, specify catalog No.



Standard Package

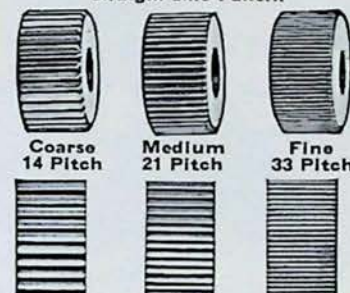
Diamond Pattern		Straight Line Pattern		Pitch	For Knurling Tool No.	DIMENSIONS OF KNURLS					Pair Approx. Weight Lb.
Std. Face No.	Full Face No.	Std. Face No.	Full Face No.			Diam. Inches	Std. Face Width Inches	Full Face Width Inches	Hole Diam. Inches	Thickness Inches	
8221	8241	8261	8271	14	00-K, 0-K 3-K-00, 3-K-0 2040	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{7}{32}$	$\frac{5}{16}$	.03
8224	8244	8264	8274	21							
8227	8247	8267	8277	33							
8222	8242	8262	8272	14	1-K, 2-K 3-K-1, 3-K-2	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	.06
8225	8245	8265	8275	21							
8228	8248	8268	8278	33							
8223	8243	8263	8273	14	4-K	1	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{5}{16}$	$\frac{3}{8}$	.13
8226	8246	8266	8276	21							
8229	8249	8269	8279	33							

Diamond Pattern



Knurling produced by pairs of right and left-hand Diamond Standard Face Knurls

Straight Line Pattern



Knurling produced by pairs of Straight Line Full Face Knurls

ARMSTRONG LATHE TOOL SETS

"BIG TEN" TOOL HOLDER SET



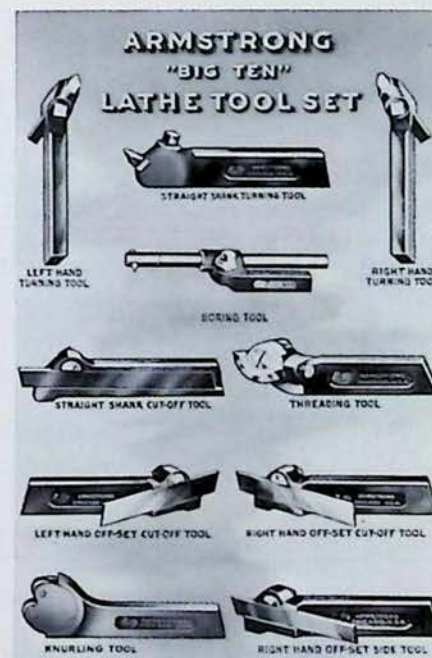
The ARMSTRONG "Big Ten" Tool Holder Set includes the ten tools illustrated at right and is so complete as to cover the entire range of lathe work.

Each set, Nos. A00 to A2 inclusive, is furnished in a special steel case.

"Big Ten" Tool Holder Set

Set No.	Size of Holders Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
A00	$\frac{5}{16} \times \frac{3}{4}$	7 to 10	6.50
A0	$\frac{3}{8} \times \frac{1}{8}$	10 to 12	11.50
A1	$\frac{1}{2} \times 1\frac{1}{8}$	14 to 16	21.00
A2	$\frac{5}{8} \times 1\frac{3}{8}$	16 to 18	27.00
†A3	$\frac{3}{4} \times 1\frac{5}{8}$	18 to 20	46.75
A4	$\frac{7}{8} \times 1\frac{3}{4}$	24 to 36	63.63

†Set consists of 9 tools, no knurling tool.

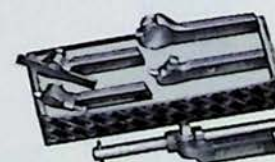


"HANDY FIVE" TOOL HOLDER SET

The ARMSTRONG "Handy Five" Tool Holder Set includes the five lathe tools which are constantly used on ordinary work: Straight Shank Turning Tool, Boring Tool, Threading Tool, Right-Hand Offset Cutting-off Tool and Self-Centering Knurling Tool.

"Handy Five" Tool Holder Set

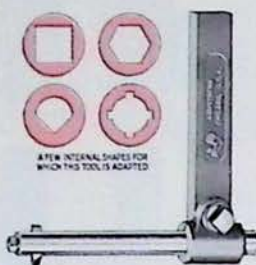
Set No.	Size of Holders Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
0-G	$\frac{3}{8} \times \frac{1}{8}$	10 to 12	5.21
1-G	$\frac{1}{2} \times 1\frac{1}{8}$	14 to 16	9.63
2-G	$\frac{5}{8} \times 1\frac{3}{8}$	16 to 18	16.25





ARMSTRONG EXTENSION SHAPER TOOLS

The ARMSTRONG Extension Shaper Tool is boxed separately and includes one holder, one bar, one ARMSTRONG High Speed tool bit and wrench. For extra High Speed Tool Bits, see page 39.



No.	Size of Holder Inches	Size Bar Inches	Size of Tool Bit Square Inches	Approx. Weight Lb.
*46	$\frac{3}{8} \times \frac{1}{8} \times 5\frac{1}{2}$	$\frac{1}{2} \times 7\frac{1}{2}$	$\frac{3}{16}$	1.13
47	$\frac{1}{2} \times 1\frac{1}{8} \times 7$	$\frac{3}{4} \times 10$	$\frac{3}{16}$	3.25
48	$\frac{5}{8} \times 1\frac{3}{8} \times 8\frac{1}{2}$	$1\frac{1}{8} \times 12$	$\frac{3}{8}$	6.00
49	$\frac{3}{4} \times 1\frac{5}{8} \times 10$	$1\frac{1}{2} \times 14$	$\frac{7}{16}$	9.75

*No. 46 shank employs two hollow set screws to hold the bar instead of split collar illustrated.

EXTRA BARS FOR EXTENSION SHAPER TOOLS

Includes bar, one high speed tool bit and wrench.

No.	DIMENSIONS OF BAR		Size of Tool Bit Square	Fits Tool No.	Approx. Weight Lbs.
	Diam.	Length			
0530	$\frac{1}{2}$	$7\frac{1}{2}$	$\frac{3}{16}$	46	.63
0532	$\frac{5}{8}$	$8\frac{1}{2}$	$\frac{1}{4}$	*	.88
0597	$\frac{3}{4}$	10	$\frac{5}{16}$	47	1.81
0598	$1\frac{1}{16}$	12	$\frac{3}{8}$	48	2.81
0540	$1\frac{1}{8}$	14	$\frac{7}{16}$	49	4.63

*With necessary bushings, fits tools Nos. 47, 48 and 49.

BUSHINGS FOR EXTENSION SHAPER TOOL BARS

Used for bushing smaller shaper tool bars to larger extension shaper tools.

No.	For Extension Shaper Bar, Diameter	Fits Tool No.	Approx. Weight Lb.	No.	For Extension Shaper Bar, Diameter	Fits Tool No.	Approx. Weight Lb.
0530-A	$\frac{1}{2}$	47	.20	0532-C	$\frac{5}{8}$	49	.50
0530-B	$\frac{1}{2}$	48	.30	0597-A	$\frac{3}{4}$	48	.20
0530-C	$\frac{1}{2}$	49	.60	0597-B	$\frac{3}{4}$	49	.40
0532-A	$\frac{5}{8}$	47	.15	0598-A	$1\frac{1}{16}$	49	.35
0532-B	$\frac{5}{8}$	48	.25	.....	..	..	...

ARMSTRONG PLANER AND SHAPER TOOLS

Each ARMSTRONG Planer and Shaper tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit. For extra High Speed Tool Bits, see page 39.



No.	Size of Holder Inches	Size of Tool Bit, Inches	Approx. Wt., Lb.	No.	Size of Holder Inches	Size of Tool Bit, Inches	Approx. Wt., Lb.
*39	$\frac{3}{8} \times \frac{1}{8} \times 5\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4}$	1.00	42	$1\frac{1}{8} \times 1\frac{3}{4} \times 13$	$\frac{1}{2} \times \frac{3}{4}$	11.0
*40	$\frac{1}{2} \times 1 \times 6$	$\frac{1}{4} \times \frac{3}{8}$	1.75	43	$1\frac{3}{8} \times 2 \times 16$	$\frac{5}{8} \times \frac{7}{8}$	19.5
*401	$\frac{5}{8} \times 1\frac{1}{4} \times 8\frac{1}{2}$	$\frac{3}{16} \times \frac{7}{16}$	3.25	44	$1\frac{7}{8} \times 2\frac{1}{4} \times 19$	$\frac{3}{4} \times 1$	35.0
*41	$\frac{3}{4} \times 1\frac{1}{2} \times 10$	$\frac{3}{8} \times \frac{1}{2}$	5.00	45	$2\frac{1}{8} \times 2\frac{3}{4} \times 22$	$\frac{7}{8} \times 1\frac{1}{8}$	51.0

*Shaper sizes.

Note: ARMSTRONG Carbide Tool Holders listed on page 7 are also well adapted to planer and shaper work.

ARMSTRONG GANG PLANER TOOL

For Planing Large Surfaces

Each tool is boxed separately and includes one set (four) ARMSTRONG High Speed tool bits, wrench and grinding gauge.

For extra High Speed Tool Bits, see page 39.



No.	Size of Holder Inches	Length Overall Inches	Size of Tool Bit Inches	Feed Adjustment Inches	Approx. Wt. Lb.
61	$1\frac{1}{4} \times 1\frac{3}{4} \times 7\frac{1}{2}$	10	$\frac{3}{8} \times \frac{1}{2}$	0 to $\frac{1}{4}$	10.0
62	$1\frac{5}{8} \times 2\frac{1}{4} \times 9$	12	$\frac{1}{2} \times \frac{3}{4}$	0 to $\frac{3}{8}$	20.0
63	$2 \times 2\frac{1}{2} \times 11$	14	$\frac{5}{8} \times \frac{7}{8}$	0 to $\frac{1}{2}$	35.0

For best results, use ARMSTRONG High Speed Tool Bits—see page 39



ACE TOOLS

For HOME and SCHOOL SHOPS

ACE Tool Holders are drop forged from special steel, accurately machined, heat treated and hardened. They are especially designed for use in home workshops, school shops or wherever small lathes are used.

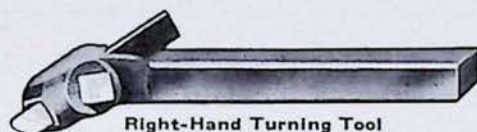
ACE TURNING TOOLS



Straight Shank Turning Tool



Left-Hand Turning Tool

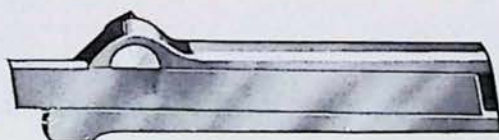


Right-Hand Turning Tool

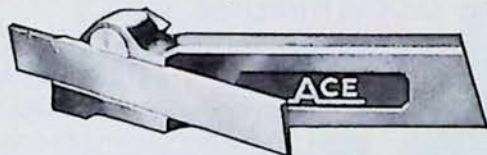
Boxed complete with high speed tool bit and wrench.

No.	Shank Size Inches	*Tool Bit Size Square, In.	For Lathe Size Swing, In.	Approx. Weight Lb.
2010-S	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9-10	.37
2010-R	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9-10	.37
2010-L	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9-10	.37

ACE CUTTING-OFF TOOLS



Straight Shank



Right-Hand Offset

Boxed complete with wrench and high speed beveled cut-off blade.

Cat. No.	Shank Size Inches	†Cut-Off Blade Size Inches	For Lathe Size Swing, In.	Approx. Weight Lb.
2020-L	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9-10	.44
2020-S	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9-10	.44
2020-R	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9-10	.44

*See page 37, for High Speed Tool Bits for use in Ace Turning Tools.

†See page 38, for High Speed Cut-off Blades for use in Ace Cutting-off Tools.

Ground to shape form cutters for use in Ace Turning Tools are listed on page 38, Set No. 0136S

Each ACE Tool is a permanent, multi-purpose tool. All take tool bits quickly ground from stock shapes of high speed steel that can be bought anywhere.

ACE metal cutting tools come in two shank sizes.

ACE LATHE TOOL SETS



Set No. 8AA

With an ACE Lathe Tool Set, you are permanently "Tooled up" for any job. Each ACE Lathe Tool Set provides permanent ACE Tool Holders for every standard lathe operation.

ACE SET NO. 8AA

Shank size, $\frac{3}{8} \times \frac{3}{4}$ ". Furnished in a steel case fitted to hold tools in place. Set consists of 1 each of the tools listed below. Approximate weight 7 lbs.

No.	Description
2010-S	Straight Shank Turning Tool
2010-R	Right-Hand Offset Turning Tool
2010-L	Left-Hand Offset Turning Tool
2080-B	Boring Tool with Plain Bar
2020-S	Straight Cutting-off Tool
2020-R	Right-Hand Offset Cutting-off Tool
2040	Knurling Tool
2050	Threading Tool

ACE SET NO. 8AF

Same Set as No. 8AA, but with No. 2080 Boring Tool replacing No. 2080-B Boring Tool. Approximate weight 7 lbs.

ACE SET NO. 5A

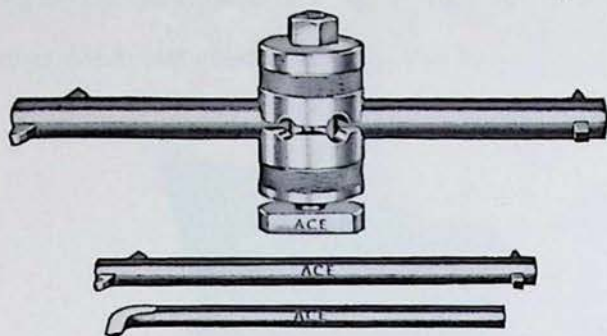
Composed of the following five tools: Nos. 2010-S, 2020-R, 2040, 2050, 2080,—complete in metal box. Approximate weight 4.50 lbs.



ACE TOOLS

For HOME and SCHOOL SHOPS

ACE 3-BAR BORING TOOL



For boring and internal threading. Holder and T-Slot Bolt Head replace the lathe tool post to obtain the most rigid support possible for boring bars. A slight turn of one nut releases or fastens both bar and holder. Complete with three wrenches, four high speed tool bits and three ARMSTRONG boring bars: one $\frac{3}{8} \times 7$ " forged type boring bar; one $\frac{1}{2} \times 8$ " broached bar for $\frac{3}{16}$ " square tool bit and one $\frac{3}{4} \times 11$ " broached bar for $\frac{1}{4}$ " square tool bit. Each bar has one end broached at a 90° angle and the opposite end broached at a 45° angle.

Note: Bolt head and bottom part of holder must be fitted to lathe dimensions.

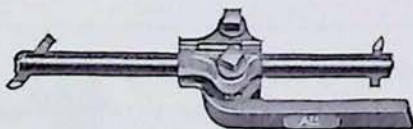
No.	For Lathe	Weight Lb.
*1455	This tool not fitted	6

*Will be fitted to your specifications. Dimensions, as shown in drawing on page 11, should be furnished when ordering. Extra charge for fitting.

ACE STYLE D BORING TOOLS



2080

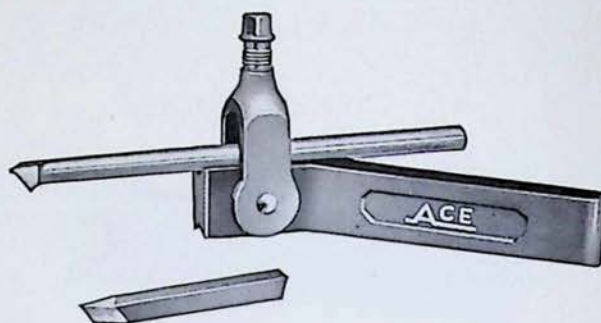


2080-B

For boring and internal threading. With reversible bar clamp. Furnished complete with forged or broached bar and wrench. Holder will accommodate $\frac{1}{4}$ to $\frac{1}{2}$ " bars.

No.	Shank Size Inches	Furnished with Bar Inches	For Lathe Inches	Weight Lb.
2080	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4} \times 5$ Forged	9—10	.12
2080-B	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{2} \times 8$ Broached	9—10	.20

ACE BORING TOOL HOLDER

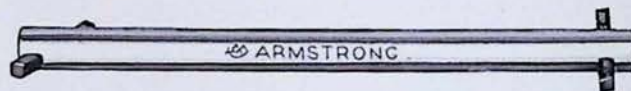


For Turning, Boring and internal Threading. Boxed complete with forged boring bar, $\frac{1}{4}$ " square high speed tool bit and wrench.

Cat. No.	Shank Size	Furnished with Bar, Size	Will Accommodate Bar, Dia., In.	For Lathes	Approx. Wt. Lbs.
2030	$\frac{3}{8} \times \frac{3}{4}$ "	$\frac{1}{4} \times 5$ "	$\frac{1}{8}$ to $\frac{1}{16}$ "	9—10"	.56

No. 2030 holder is reversible for use either right or left hand.

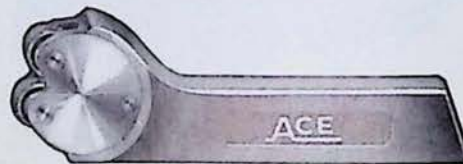
BROACHED BORING BARS



Opposite ends broached at 45° and 90° angles. Complete with two high speed tool bits and wrench.

No.	BAR SIZE		Tool Bit Size Square, Inches	Weight Lb.
	Diam. Inches	Length Inches		
07-X	$\frac{1}{2}$	8	$\frac{3}{16}$	.53
09-X	$\frac{3}{4}$	11	$\frac{1}{4}$	1.44

ACE KNURLING TOOLS



Boxed complete with self-centering head and one pair of medium 21 pitch, diamond knurls. Special Ace knurling Tools can be furnished with other than Medium Diamond Knurls.

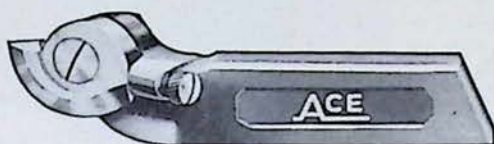
No.	Shank Size, In.	Lathe Size, In.	Wt., Lb.
2040	$\frac{3}{8} \times \frac{3}{4}$	9—10	.44



ACE TOOLS

For HOME and SCHOOL SHOPS

ACE THREADING TOOLS



Boxed complete with wrench and one high speed 60° Sharp V-form thread cutter, ground ready for use.

No.	Shank Size, In.	Lathe Size, In.	Wt., Lb.
2050	$\frac{3}{8} \times \frac{3}{4}$	9—10	.44

ACE FORMED THREADING CUTTERS



Sharp V 60° formed threading cutter needs only flat top grinding to sharpen. Standard ARMSTRONG formed threading cutters can also be used. Refer to page 15.

No.	For Ace Threading Tool No.	Wt., Lb.
8160	2050	.04

ACE EXTENSION SHAPER TOOL

Exceptionally rigid, especially adapted for cutting internal keyways and for any work on the shaper requiring extra clearance. Drop forged from special steel, heat treated and hardened. Polished steel bar.

Diameter of bar, $\frac{1}{2}$ inch.

Internal keyseating capacity, $5\frac{1}{2}$ in.

Boxed complete with bar, high speed tool bit and wrench.



No.	Shank Size Inches	Bit Size Square, Inches	Weight Lb.
2046	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{3}{16}$	.94

ACE SHAPER TOOL

Boxed separately with high speed steel tool bit and wrench.

Drop forged from special steel, accurately machined, heat treated and hardened.

Tool bit can be held at various angles.



No.	Shank Size Inches	Bit Size Square, Inches	Weight Lb.
2060	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{1}{4}$	.88

ACE LATHE DOGS



With Square Head Screw



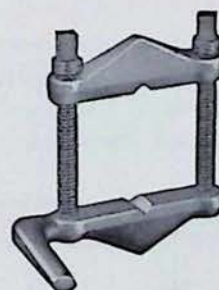
With Safety Screw

For working on centers without chuck. Drop forged with special steel screws hardened at point.

No.		Capacity, In.	Wt., Lb.
With Sq. Head Screw	*With Safety Screw		
101	101-H	$\frac{3}{8}$	.25
201	201-H	$\frac{1}{2}$	.25
301	301-H	$\frac{3}{4}$	.37
401	401-H	1	.53
501	501-H	$1\frac{1}{4}$	.81
601	601-H	$1\frac{1}{2}$	.62

*Wrenches furnished as extras. When ordering dogs with safety screws, specify wrenches wanted.

ACE CLAMP LATHE DOGS



Drop forged of steel, machined and hardened. Under face of screw heads is convex which allows considerable tilting without binding screws.

No.	Capacity Between Screws, Inches	Wt. Lb.
2011	$1\frac{3}{4}$	.53
2012	$2\frac{1}{4}$	.75



ARMSTRONG LATHE DOGS

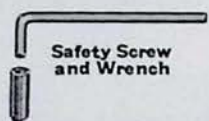
Drop Forged Steel—With Either Square Head or Safety Screws

ARMSTRONG Lathe Dogs are drop forged from selected steel to give exceptional toughness and stiffness which are essential in a good lathe dog. Finished in gray baked-on enamel. Dogs with square head screws will be shipped unless otherwise specified.

Bent Tail Lathe Dogs



With Square Head Screw



Safety Screw
and Wrench



With Safety Screws

No.		Capacity Inches	Approx. Weight Lb. Complete
With Sq. Head Screw	*With Safety Screw		
1	1-H	$\frac{3}{8}$	.25
2	2-H	$\frac{1}{2}$	.38
3	3-H	$\frac{3}{4}$	.50
4	4-H	1	.75
5	5-H	$1\frac{1}{4}$	1.50
6	6-H	$1\frac{1}{2}$	2.00
7	7-H	$1\frac{3}{4}$	2.75
8	8-H	2	3.50
9	9-H	$2\frac{1}{2}$	5.25
10	10-H	3	6.75
11	11-H	$3\frac{1}{2}$	9.00
12	12-H	4	12.00
13	13-H	5	18.00
14	14-H	6	24.00

*Wrenches furnished as extras. When ordering dogs with safety screws, specify wrenches wanted.

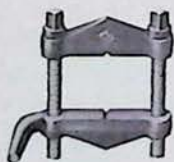
ARMSTRONG CLAMP LATHE DOGS



SAFETY CLAMP LATHE DOGS

These dogs are constructed to combine a wide range of adjustment with the convenient features of the clamp dog and the simplicity and strength of the ordinary lathe dog. One advantage of this dog is that it can be applied without removing work from centers.

No.	Capacity Inches	Approx. Wt., Lb.	No.	Capacity Inches	Approx. Wt., Lb.
1-U	$\frac{1}{8}$ to $\frac{5}{8}$	.63	5-U	$1\frac{1}{4}$ to 3	9.5
2-U	$\frac{3}{8}$ to 1	1.75	6-U	$1\frac{3}{4}$ to 4	16.0
3-U	$\frac{5}{8}$ to $1\frac{1}{2}$	3.00	7-U	$2\frac{1}{2}$ to 5	21.0
4-U	$\frac{7}{8}$ to 2	4.50	....	.....	....



CLAMP LATHE DOGS

The clamp bars are forged from a stiff, open hearth steel, carefully machined and hardened. Screws are hardened. Separately boxed.

No.	Cap. Between Screws Inches	Approx. Wt., Lb.	No.	Cap. Between Screws Inches	Approx. Wt., Lb.
11	$1\frac{3}{4}$	.63	13	$2\frac{3}{4}$	1.75
12	$2\frac{1}{4}$	1.00	14	$3\frac{1}{2}$	2.75

Straight Tail Lathe Dogs



With Square
Head Screw

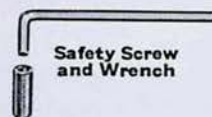
Cat. No.	Capacity Inches	Approx. Weight Lb. Complete
22	$\frac{1}{2}$	.25
23	$\frac{3}{4}$	.50
24	1	.75
26	$1\frac{1}{2}$	2.00
28	2	3.25
30	3	6.75
32	4	11.00
33	5	17.00

HEAVY DUTY LATHE DOGS

Double Screw



With Square Head Screws



Safety Screw
and Wrench



With Safety Screw

No.		Capacity Inches	Approx. Weight Lb. Complete
With Sq. Head Screws	*With Safety Screws		
112	112-H	4	15.0
113	113-H	5	21.0
114	114-H	6	29.0
117	117-H	7	39.0
118	118-H	8	50.0

*Wrenches furnished as extras. When ordering dogs with safety screws, specify wrenches wanted.

ARMSTRONG MILLING MACHINE DOGS

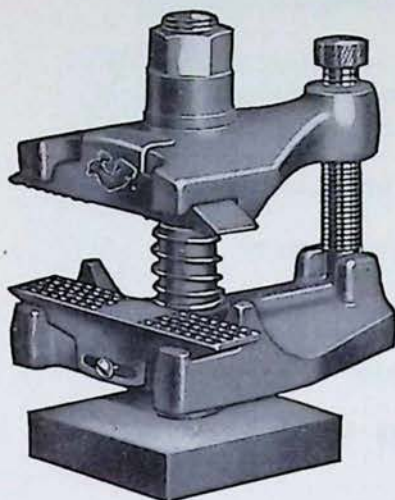


These dogs are recommended for use on taper work carried between centers on milling machines. The flat tail engages the head slot without the backlash produced by taper tail dogs.

No.	Capacity Inches	Approx. Wt., Lb.	No.	Capacity Inches	Approx. Wt., Lb.
42	$\frac{1}{2}$	.75	46	$1\frac{1}{2}$	1.50
43	$\frac{3}{4}$	.88	47	$1\frac{3}{4}$	1.63
44	1	1.00	48	2	2.00
45	$1\frac{1}{4}$	1.25	..	...	....

ARMSTRONG IMPROVED LATHE TOOL POSTS

The ARMSTRONG Improved Lathe Tool Post combines the strength and holding power of the strap and stud tool clamp with the convenience of the "open side" and ordinary set screw tool post.



Points of Superiority

It is stronger and stiffer than the ordinary tool post; will not slip or chatter and consequently will do more accurate work.

No side projection, peculiarly adapted to working close up to chuck.

It has a great range of adjustment without loss of holding power as the rocker jaws adjust themselves on parallel lines.

Open side design permits rapid and convenient change and adjustment of tools.

It will not cut or tear the tool shank, and is therefore peculiarly adapted to use in connection with tool holders. The body parts and jaws are drop forged of steel and hardened. Other parts are bar steel.

Each tool post is boxed separately and includes wrench.

No.	For Tools Size Inches	For Lathes Swing, Inches	Approx. Wt., Lb.
1-T	$\frac{1}{2} \times 1\frac{1}{8}$ and Less	12 to 14	5.0
2-T	$\frac{5}{8} \times 1\frac{3}{8}$ and $\frac{3}{4} \times 1\frac{3}{8}$	16 to 18	8.5
3-T	$\frac{3}{4} \times 1\frac{5}{8}$ and $\frac{7}{8} \times 1\frac{3}{4}$	20 to 22	11.5
4-T	$\frac{7}{8} \times 1\frac{3}{4}$ and 1 x 2	24 to 32	18.0

Note: Bolt head and base forging are made large enough to allow for fitting. This is made necessary by the variation in size of T slots and center heights in lathes of different manufacture. Fitting—An extra charge will be made for fitting tool post to individual lathe dimensions. Dimensions, as shown in the drawing on page 11, should be furnished when ordering a fitted tool post.

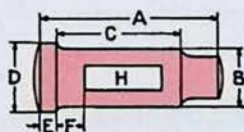
ARMSTRONG TOOL POST FITTINGS

Unfinished

ARMSTRONG Tool Post Fittings are drop forged of selected steel—not machined or heat treated.

TOOL POSTS

Openings punched out—screw hole not drilled.



No.	Length A Inches	BODY		BASE		Base to Opening F Inches	Opening Size H Inches	For Use with Wedge No.	For Use with Ring No.	Approx. Wt. Lb.
		Diam. B Inches	Lgth. C Inches	Diam. D Inches	Lgth. E Inches					
5	$2\frac{15}{16}$	$1\frac{1}{2}$	2	$1\frac{1}{2}$	$\frac{5}{16}$	$\frac{7}{16}$	$1\frac{1}{2} \times \frac{3}{16}$	5	5	.44
10	$4\frac{1}{16}$	$1\frac{1}{4}$	$2\frac{7}{8}$	$1\frac{5}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$1\frac{1}{2} \times \frac{1}{2}$	10	10	.81
20	$4\frac{3}{16}$	$1\frac{5}{8}$	$3\frac{1}{4}$	$2\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$1\frac{1}{2} \times \frac{1}{2}$	15, 18	11	2.10
23	5	$1\frac{7}{8}$	$3\frac{1}{2}$	$1\frac{7}{8}$	$\frac{5}{16}$	$\frac{5}{8}$	$2\frac{1}{2} \times \frac{1}{2}$	15	14	1.60
28	$5\frac{3}{16}$	$1\frac{9}{16}$	$3\frac{11}{16}$	$2\frac{1}{16}$	$\frac{5}{16}$	$\frac{5}{8}$	$2\frac{1}{2} \times \frac{1}{2}$	15, 18	18	2.10
30	$5\frac{1}{4}$	$1\frac{11}{16}$	$3\frac{3}{4}$	$2\frac{5}{16}$	$\frac{1}{2}$	$\frac{1}{2}$	$2\frac{1}{2} \times \frac{3}{4}$	18, 20	20	3.00
40	$6\frac{5}{16}$	$2\frac{1}{16}$	$4\frac{3}{8}$	$2\frac{5}{8}$	$\frac{9}{16}$	$1\frac{3}{16}$	$2\frac{1}{2} \times \frac{7}{8}$	30, 40	30, 40	4.70
50	$7\frac{3}{8}$	$2\frac{1}{4}$	5	$2\frac{1}{2}$	$\frac{5}{8}$	$1\frac{3}{8}$	$2\frac{7}{8} \times \frac{1}{2}$	60	60	6.60
60	$8\frac{3}{4}$	$2\frac{3}{4}$	6	$3\frac{5}{8}$	$\frac{3}{4}$	$1\frac{1}{2}$	$3\frac{3}{4} \times 1$	..	..	13.60

TOOL POST WEDGES

For Changing Angles of Lathe Tools



No.	Lgth. In.	Width Top In.	Width Extreme In.	Extreme Thickness In.	Radius, In.	For Use with Post No.	For Use with Ring No.	Approx. Wt. Lb.
5	$2\frac{13}{32}$	$\frac{13}{32}$	$\frac{1}{2}$	$\frac{11}{32}$	3	5	5	.06
10	3	$\frac{9}{16}$	$\frac{21}{32}$	$\frac{31}{64}$	$2\frac{7}{8}$	10	10	.13
11	$3\frac{3}{8}$	$\frac{1}{2}$	$\frac{19}{32}$	$\frac{25}{64}$	$4\frac{5}{8}$	20	11	.09
15	$3\frac{7}{8}$	$\frac{5}{8}$	$\frac{23}{32}$	$\frac{7}{16}$	$4\frac{5}{8}$	20	11	.16
18	$3\frac{7}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{15}{32}$	$4\frac{1}{2}$	30	11, 20	.18
20	$3\frac{7}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{17}{32}$	$4\frac{3}{4}$	30	20	.22
30	$4\frac{3}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$	$5\frac{1}{2}$	40	30	.25
40	$4\frac{7}{8}$	$\frac{13}{16}$	$\frac{15}{16}$	$\frac{21}{32}$	$5\frac{3}{4}$	40	40	.44
60	$5\frac{1}{4}$	$\frac{15}{16}$	$\frac{13}{32}$	$\frac{3}{4}$	6	50	60	.63

TOOL POST RINGS

For Changing Angles of Lathe Tools



No.	Diam. Outside In.	Diam. Hole In.	Thickness Edge In.	Radius of Concave In.	For Use with Post No.	For Use with Wedge No.	Approx. Wt. Lb.
5	$2\frac{1}{4}$	$1\frac{1}{16}$	$\frac{3}{8}$	3	5	5	.25
10	$2\frac{15}{16}$	$\frac{1}{8}$	$\frac{1}{16}$	$2\frac{7}{8}$	10	10	.50
11	3	$\frac{1}{8}$	$\frac{1}{16}$	$4\frac{5}{8}$	20	11, 15	.50
14	$3\frac{3}{16}$	$\frac{1}{8}$	$\frac{5}{8}$	$4\frac{5}{8}$	23	18, 20	.75
18	$3\frac{7}{16}$	$\frac{1}{8}$	$\frac{1}{16}$	$4\frac{1}{2}$	28	18	1.30
20	$3\frac{1}{2}$	$\frac{1}{4}$	$\frac{9}{16}$	$4\frac{3}{4}$	30	18, 20	.94
30	$3\frac{1}{2}$	2	$\frac{3}{4}$	$5\frac{1}{2}$	40	30	1.30
40	4	2	$\frac{3}{4}$	$5\frac{3}{4}$	40	40	1.80
60	$4\frac{1}{2}$	$2\frac{3}{16}$	$\frac{3}{4}$	6	50	60	2.20



ARMSTRONG BORING HEADS

ARMSTRONG Boring Heads have a threaded back which can be fitted with interchangeable shanks, permitting their use on a wide range of machines including drill presses, jig boring machines, turret lathes, grinders, vertical and horizontal mills and engine lathes.

Compact design insures maximum tool rigidity which produces smoother, more accurately bored holes and permits them to be used with specially ground boring cutters for special machining operations such as chamfering, O.D. turning and facing.

- Large adjustment range—often eliminates offset bars and special set-ups.
- Graduations widely spaced and easily read—permit adjustments of .0005 and less.
- Generous bearing surface—permits heavy roughing cuts, more accurate finish cuts.
- All parts subject to wear are hardened to guarantee long life and sustained accuracy.
- Direct reading dial—face of the micrometer adjusting screw is graduated for direct reading

BORING HEADS



Double Bar Holders

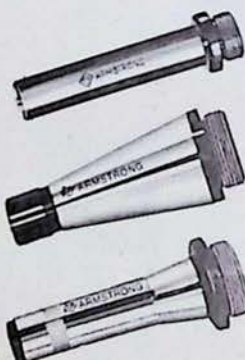


Single Bar Holders



Single Bar Holders

BORING HEAD SHANKS



Fits Boring Head Shanks BHS-1 thru BHS-6

Cat. No.	Actual Size In.	Overall Length In.	SIZE		Offset	Weight Lbs.
			Boring Bar, Hole	Cross Hole		
BH-15*	1½ Sq.	2¼	½" rd.	—	¾"	1.06
BH-15A*	1½ Sq.	2¼	¾" rd.	—	¾"	1.08
BH-20*	2 Sq.	2¼	½" rd.	—	⅞"	2.00
BH-20A*	2 Sq.	2¼	¾" rd.	—	⅞"	2.00
BH-102**	2 rd.	2⅝	½" rd.	½"	½"	1.40
BH-102A**	2 rd.	2⅝	¾" rd.	½"	½"	1.40

Fits Boring Head Shanks BHS-20 thru BHS-26

BH-30*	3 Sq.	3	1" rd.	—	1½"	5.25
BH-103**	3 diam.	3¼	¾" rd.	¾"	¾"	4.00
BH-104**	4 diam.	3¾	1" rd.	1"	1⅜"	7.80

*Single Bar Holders. **Double Bar Holders.

Fits Boring Heads BH-15, BH-15A, BH-20, BH-20A, BH-102 and BH-102A

Cat. No.	Description	Weight Lbs.
BHS-1	Straight, ½" Dia.	.38
BHS-2	Straight, ⅝" Dia.	.47
BHS-3	Straight, ¾" Dia.	.60
BHS-4	Straight, 1" Dia.	.69
BHS-5	Moore Adapter	.94
BHS-6	R-8 Bridgeport	1.00

Fits Boring Heads BH-30, BH-103 and BH-104

BHS-20	40 National	2.00
BHS-21	50 National	5.50
BHS-22	4 Morse	1.75
BHS-23	R-8 Bridgeport	1.35
BHS-24	Straight, 1" Dia.	1.25
BHS-25	Straight, 1¼" Dia.	1.94
BHS-26	Straight, 1½" Dia.	3.00



ARMSTRONG BORING BARS AND CUTTERS

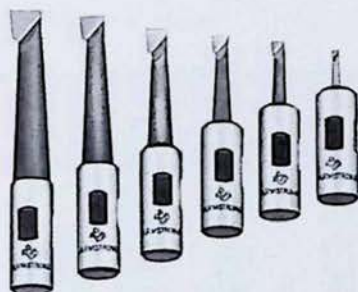
BORING BARS



Cat. No.	Diam., In.	Length In.	Angle of Tool Bit, In.	Tool Bit Size Sq. In.	Weight Lbs.
BB-1	1/2	4 1/2	45°	3/16	.25
BB-2	1/2	4 1/2	90°	3/16	.25
BB-3*	1/2	4 1/2	45°	3/16	.25
BB-4	1	6	45°	5/16	1.25
BB-5	1	6	90°	5/16	1.40
BB-6	3/4	6	45°	1/4	.80
BB-7	3/4	6	90°	1/4	.80
BB-8*	3/4	6	45°	1/4	.75
BB-9*	1	6	45°	5/16	1.25

*For Cross Hole. For best results, use Armstrong High Speed tool bits—see page 39.

BORING CUTTER SETS HIGH SPEED STEEL



Set No. BCS-375 3/8" Shank dia.

Consists of six boring cutters in cardboard box. Approx. weight .50 lb.

Cat. No.	BC-1HS	BC-2HS	BC-3HS	BC-4HS	BC-5HS	BC-6HS
Min. Boring Dia., In.	1/8	3/16	1/4	5/16	3/8	1/2
Max. Boring Depth, In.	1/2	13/16	13/16	1 1/2	1 3/4	2 1/8

Set No. BCS-500 1/2" Shank dia.

Consists of six boring cutters in cardboard box. Approx. weight .70 lb.

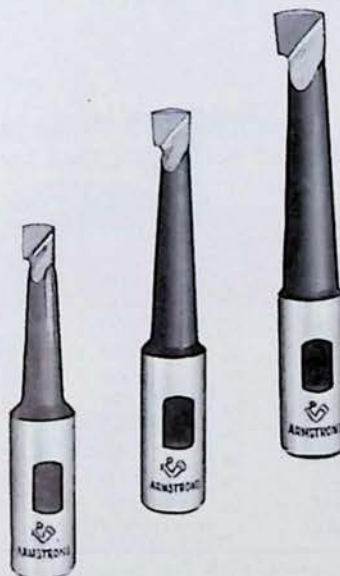
Cat. No.	BC-10HS	BC-11HS	BC-12HS	BC-13HS	BC-14HS	BC-15HS
Min. Boring Dia., In.	1/8	3/16	1/4	5/16	3/8	1/2
Max. Boring Depth, In.	1/2	13/16	13/16	1 1/2	1 3/4	2 1/8

Set No. BCS-750 3/4" Shank dia.

Consists of three boring cutters in cardboard box. Approx. weight 1.60 lbs.

Cat. No.	BC-20HS	BC-21HS	BC-22HS
Min. Boring Dia., In.	1/2	3/4	1
Max. Boring Depth, In.	2 3/8	2 7/8	3 3/8

BORING CUTTERS HIGH SPEED STEEL



Cat. No.	Min. Boring Diam., In.	Shank Diam., In.	Overall Length, In.	Max. Boring Depth, In.	Weight Lbs.
BC-1HS	1/8	3/8	2	1/2	.10
BC-2HS	3/16	3/8	2 5/16	13/16	.10
BC-3HS	1/4	3/8	2 5/8	13/16	.10
BC-4HS	5/16	3/8	2 7/8	1 1/2	.12
BC-5HS	3/8	3/8	3 1/16	1 3/4	.12
BC-6HS	1/2	3/8	3 1/2	2 1/8	.20
BC-10HS	1/8	1/2	2	1/2	.12
BC-11HS	3/16	1/2	2 5/16	13/16	.12
BC-12HS	1/4	1/2	2 5/8	13/16	.13
BC-13HS	5/16	1/2	2 7/8	1 1/2	.13
BC-14HS	3/8	1/2	3 1/16	1 3/4	.18
BC-15HS	1/2	1/2	3 1/2	2 1/8	.18
BC-20HS	1/2	3/4	3 7/8	2 3/8	.34
BC-21HS	3/4	3/4	4 3/8	2 7/8	.44
BC-22HS	1	3/4	4 7/8	3 3/8	.59
BC-30HS	1/2	1	3 7/8	2 3/8	.66
BC-31HS	3/4	1	4 3/8	2 7/8	.59
BC-32HS	1	1	4 7/8	3 3/8	.66



ARMSTRONG "C" CLAMPS

Drop Forged Steel

ARMSTRONG Clamps meet the most exacting requirements of strength, stiffness and ease of use. Each clamp is drop forged from selected steels, then heat treated to increase the natural strength and toughness of the material. The design of each ARMSTRONG Clamp has been carefully considered to provide the user with the most efficient, easiest to use tool of its type. You will find ARMSTRONG Clamps—whatever the pattern—to be reliable, strong beyond need and capable of delivering long, trouble-free service.

COMPARE

ARMSTRONG'S patented ball-joint swivel pad to any other. The tip is undercut so that when the ball of the screw is inserted and lip is permanently forced down, a solid steel wall is formed inside pad cavity completely encircling the ball. This is why the pad can't come off even under hardest use.

COMPARE

the heavy walled hub of ARMSTRONG Clamps—see how the accurately machined screw has greater support and bearing to ensure long life and accurate clamping.

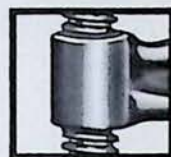
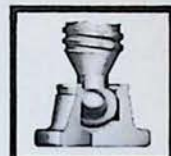
COMPARE

the generous sized carefully machined anvil of ARMSTRONG Clamps—note the accurate flat surface, how it provides greater gripping area for big work, yet permits pin-point clamping of small pieces.

COMPARE

ARMSTRONG'S superior rust resisting Parco Lubrite® finish* with finishes available on other makes of clamps. Parco Lubrite is better because it actually penetrates into the steel surfaces of ARMSTRONG clamp bodies, screws, handles and pads.

*Parco Lubrite is a registered trademark of the Parker Rust Proof Division of Hooker Chemical Corporation.



HEAVY DUTY PATTERN

For Maximum Holding Power

Heavy Design with Long Hub, Extra Large Screws



Individually boxed
Parco Lubrite finish

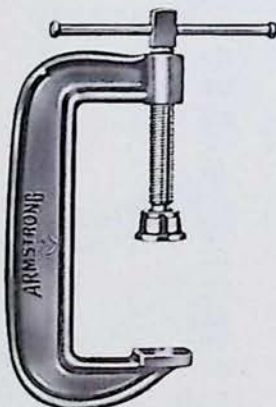
Drop forged from a select grade of steel, heat treated to insure maximum degree of strength. Alloy steel screws have hardened points. This pattern is universally recognized as the strongest "C" Clamp made.

No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Min. Test Load Lbs.	Approx. Weight Lbs.
	Max. Inches	Min. Inches				
0	3/4	0	3/4	3/8	2800	.50
1	1 1/4	0	1 1/8	7/16	5600	.75
1 1/2	1 3/4	0	1 1/2	9/16	8750	1.75
2	2 1/4	7/8	1 7/8	1 1/16	12500	3.50
3	3 1/4	1 1/4	2 1/4	1 3/16	16250	6.00
4	4 1/2	1 3/4	2 3/4	1 5/16	20000	10.00
5	5 1/2	2 1/2	3 1/4	1	23800	13.50
6	6 1/2	3 1/4	3 1/2	1 1/8	27500	18.50
8	8 1/2	4 1/2	3 3/4	1 1/4	31250	25.00
10	10 1/2	6	3 7/8	1 1/2	35000	30.00
12	12 1/2	7 1/2	4	1 3/4	40000	33.00

Nos. 2 through 12 available with full length screws when specified—minimum capacity, 0°.

MEDIUM SERVICE PATTERN

For Maximum Utility



Individually boxed
Parco Lubrite finish

Well adapted to that wide field of work not requiring the extra weight and extreme stiffness which make our heavy clamp unequalled for the very hardest service.

The design and careful selection of material used combine the maximum strength and stiffness consistent with convenient weight.

It is drop forged of select steel, and is heat treated to increased tensile strength.

Screw is heat treated. Equipped with sliding pin handle and patented ball-joint swivel pad that cannot come off.

No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Min. Test Load Lbs.	Approx. Weight Lbs.
	Max. Inches	Min. Inches				
102	2	0	1 1/2	1 1/2	7500	1.25
103	3	0	2	5/8	8750	2.50
104	4	0	2 3/8	3/4	10000	4.00
106	6	2	2 1/2	3/4	11250	6.00
108	8	4	2 5/8	3/4	12500	7.25
110	10	6	2 3/4	3/4	13750	8.25
112	12	8	2 7/8	7/8	15000	11.50
115	15	10	3 1/8	7/8	16250	14.00
118	18	13	3 1/4	7/8	17500	18.00

Nos. 106 through 112 available with full length screws when specified—minimum capacity, 0°.

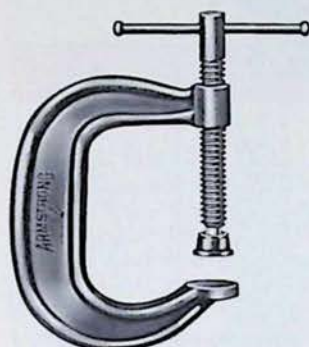


ARMSTRONG "C" CLAMPS

Drop Forged Steel

EXTRA DEEP THROAT PATTERN

For Extra Clearance



Individually boxed
Parco Lubrite finish

Provides additional clearance beyond that offered by standard clamps. Widely used by body builders, woodworkers and allied trades.

Body is drop forged from a selected steel; heat treated for maximum strength and stiffness.

The screw is machined from selected steel and heat treated.

Equipped with sliding pin handle and ball-joint swivel pad.

Extra Deep Throat No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Min. Test Load Lbs.	Approx. Weight, Lbs.
	Max. Inches	Min. Inches				
401½	1½	0	1⅜	⅜	1400	1.00
402	2	0	2	½	3300	1.13
403	3	0	2⅜	½	3500	1.50
404	4	0	2¾	⅝	4100	2.25
406	6	0	3⅝	¾	5400	3.75
408	8	0	4½	¾	5900	5.50
410	10	3	5⅝	¾	6200	8.25
412	12	4	5¾	⅞	9300	12.50

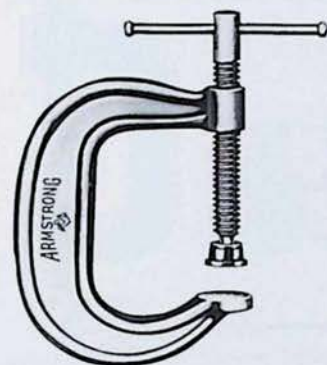
Nos. 410 and 412 available with full length screws when specified—minimum capacity, 0".

"C" CLAMPS—SPATTER RESISTING

Extra Deep Throat Pattern For Welding

Drop Forged Steel

Welders' Finish



Individually boxed
Cadmium plated

Spatter resisting for welding. Body, swivel and screw are cadmium-plated all over to prevent welding spatter from sticking to them.

Widely used by body builders, woodworkers and allied trades. Provides additional clearance beyond that offered by standard clamps.

Screw is machined from selected steel and equipped with a sliding pin handle and ball-joint swivel pad.

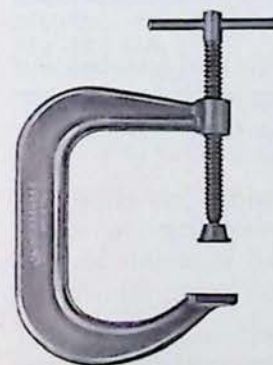
No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Min. Test Load Lbs.	Approx. Weight, Lbs.
	Max. Inches	Min. Inches				
401½-S	1½	0	1⅜	⅜	1400	1.00
402-S	2	0	2	½	3300	1.13
403-S	3	0	2⅜	½	3500	1.50
404-S	4	0	2¾	⅝	4100	2.25
406-S	6	0	3⅝	¾	5400	3.75
408-S	8	0	4½	¾	5900	5.50
410-S	10	3	5⅝	¾	6200	8.25
412-S	12	4	5¾	⅞	9300	12.50

Nos. 410-S and 412-S available with full length screws when specified—minimum capacity, 0".

Body is drop forged from selected steel, heat treated for maximum strength and stiffness.

SQUARE THROAT PATTERN

For Maximum Clearance



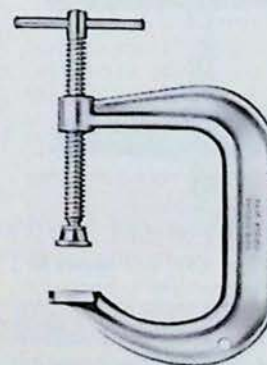
Individually boxed
Parco Lubrite finish

These have the greatest throat depth of any ARMSTRONG Clamp—and up to 89% more than conventional clamps—yet possess strength and stiffness for which all ARMSTRONG Clamps are noted. Accurately threaded screw is heat treated and fitted with sliding pin handle and patented Ball-Joint Swivel Pad.

Also available in spatter resisting cadmium finish. Plated bodies, screws and pads prevent welding spatter adhesion.

Square Throat No.	Spatter Resistant No.	CAPACITY, IN.		Depth Center of Screw to Back Inches	Diam. Screw, In.	Min. Test Load Lb.	Approx. Weight, Lbs.
		Max.	Min.				
1403	1403-S	3	0	3½	½	3500	2.25
1404	1404-S	4	0	4½	⅝	4100	4.5
1406	1406-S	6	0	6½	¾	5400	8.25
1408	1408-S	8	0	8½	¾	5900	11.75

Welders' Finish



Individually boxed
Cadmium plated



ARMSTRONG "C" CLAMPS

CARRIAGE CLAMPS—Malleable Iron

These low cost general purpose carriage clamps are rugged enough for light metal fabrication or woodworking where the strength of a drop forged clamp is not essential. V-Slot in the anvil permits clamping small rounds or on corners. Screw is equipped with sliding pin handle and patented Ball-Joint swivel pad that can't come off even under hardest use.



Natural Finish

Clamps are packaged 5 per box except 8" clamp and larger—which are not packaged.

No.	Capacity, In.		Depth, Inches	Screw Diameter	Min. Test Load, Pounds	Approx. Weight, Lbs.
	Max.	Min.				
5402	2½	0	1¾	½"	1,100	1.00
5403	3	0	1¾	½"	1,800	1.50
5404	4	0	2¼	⅝"	2,150	1.90
5405	5	0	2½	⅝"	2,250	2.50
5406	6	0	2¾	⅝"	2,450	2.75
5408	8	0	3¼	¾"	2,750	4.50
5410	10	2	3⅝	⅞"	2,850	6.50
5412	12	4	3⅝	⅞"	2,850	8.40
5414	14	2	3¾	⅞"	2,850	9.40

"C" CLAMPS FOR TOOL MAKERS

Drop Forged Steel

These clamps are drop forged from a selected steel and heat treated to increase the natural strength and toughness of the material.

The screws also are drop forged from a selected steel, are heat treated and are constructed with square necks to enable the user to set them up tightly by using a wrench.

Clamps with patented ball-joint swivel pad will be furnished, unless plain screw type is specified. Both types individually boxed and finished in Parco Lubrite.



With Plain Screw

No.		CAPACITY		Depth Center of Screw to Back Inches	Diameter of Screw Inches	Approx. Weight Lb.
With Plain Screw	With Swivel Pad	Max. Inches	Min. Inches			
201-P	201	1	0	$\frac{11}{16}$	$\frac{5}{16}$	.33
202-P	202	2	0	$\frac{13}{16}$	$\frac{3}{8}$	.25
203-P	203	3	1	$\frac{15}{16}$	$\frac{3}{8}$	.63
204-P	204	4	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{7}{16}$	1.00

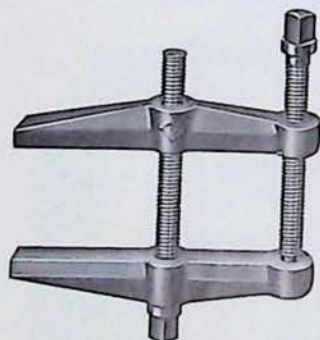


With Swivel Screw

ARMSTRONG CLAMPS

MACHINISTS' CLAMPS

Drop Forged Steel

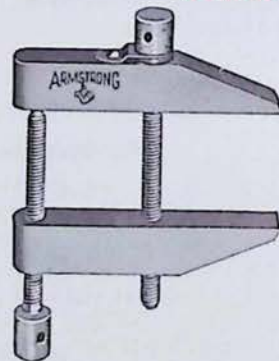


ARMSTRONG Machinists' Clamps are drop forged from a selected grade steel, carefully machined and hardened. The under face of the center screw is convex, fitting into a concave seat to allow for tilting.

Jaws are extra heavy, will not bend or spring on a short bite and are faced true. The screws are hardened. Each clamp is boxed separately.

No.	Capacity	Approx. Wt., Lb.
301	Opens to 1¼ Inches	.75
302	Opens to 2¼ Inches	1.00
303	Opens to 3¼ Inches	1.75
304	Opens to 4¼ Inches	2.75

PARALLEL CLAMPS



ARMSTRONG Parallel Clamps are made from a selected grade steel, carefully machined and hardened.

Particularly suited for holding work together in drilling and tapping operations.

Rounded jaw ends permit clamping in close quarters. A spring clip holds the loose jaw in constant alignment when opening or closing the clamp.

Each clamp is boxed separately.

No.	Capacity	Approx. Wt., Lb.
311	1¼-Inch Jaw Opening	.25
313	1¾-Inch Jaw Opening	.66
315	2½-Inch Jaw Opening	1.00

ARMSTRONG VISES

SWIVEL BASE MACHINISTS' VISES



Swivels full 360°. Geared bolt & base plate assures positive locking and slip-proof rotation. Unbreakable malleable iron castings. Self-lubricating graphite bronze thrust bearing. Replaceable "T" section jaw faces secured with drive pins. No holes in gripping face. All sizes, except 6" and 8" have large ground and polished anvil. Finished in gray baked-on enamel. Packaged one to a carton.

No.	Jaw Width In.	Jaw Opening In.	Throat Depth In.	Wt. Each Lbs.
MV-1	3	4	3	25
MV-2	3½	5	3¼	35
MV-3	4	6	3⅝	43
MV-4	4½	7	4⅛	57
MV-5	5	8	4¼	70
MV-6	6	10	4⅜	107
MV-8	8	12	6	184

STATIONARY BASE MACHINISTS' VISES



Unbreakable malleable iron castings. Self-lubricating graphite bronze thrust bearing. Replaceable "T" section jaw faces secured with drive pins. No holes in gripping face. All sizes, except 6" and 8" have large ground and polished anvil. Finished in gray baked-on enamel. Packaged one to a carton.

No.	Jaw Width In.	Jaw Opening In.	Throat Depth In.	Wt. Each Lbs.
MV-10	3	4	3	21
MV-12	3½	5	3¼	30
MV-13	4	6	3⅝	38
MV-14	4½	7	4⅛	49
MV-15	5	8	4¼	60
MV-16	6	10	4⅜	92
MV-18	8	12	6	160

SWIVEL BASE KIT

Converts Armstrong stationary base vise to swivel base type. Can be installed in 2 minutes. Includes swivel base, lock nut, lock bolt, center bolt, washer, bushing and plug cap.



Kit No.	Fits Vise No.	Wt. Each Lbs.
SBK-1	MV-10	4
SBK-2	MV-12	5
SBK-3	MV-13-MV-14	5
SBK-5	MV-15	10
SBK-6	MV-16	15
SBK-8	MV-18	24

ADJUSTABLE JAW SWIVEL BASE VISES



With pin in place, swivel back jaw is locked rigidly for use as parallel jaw vise. Removal of pin permits back swivel jaw to align itself with irregular or tapering pieces. Unbreakable malleable iron castings. Self-lubricating graphite bronze thrust bearing. Replaceable "T" section jaw faces. Sizes larger than 5" have 2 swivel clamping nuts. Finished in gray baked-on enamel. Packaged one to a carton.

No.	Jaw Width In.	Jaw Opening In.	Throat Depth In.	Wt. Each Lbs.
MV-22	3½	5	3¼	36
MV-24	4½	6	4⅛	59
MV-26	6	9	4⅜	120

COMBINATION PIPE SWIVEL BASE VISES



All 3 tool steel pipe jaws are interchangeable; each has 2 working faces. Special pipe jaw design permits holding pipe down to ⅛". Other work can be held without removing pipe jaws because they don't protrude beyond jaw faces. Unbreakable malleable iron castings. Self-lubricating graphite bronze thrust bearing.

No.	Jaw Width In.	Jaw Opening In.	Throat Depth In.	Pipe Capacity In.	Wt. Each Lbs.
MV-32	3½	4	4	⅛-2½	38
MV-34	4½	5	5⅜	⅛-3½	61
MV-35	5	6	6¼	⅛-4½	95
MV-36	6	10	7⅞	⅛-6	162

SHEET METAL WORKERS' VISE

Specially designed for sheet metal work, wood working and body work. High tapering jaws with extra deep smooth faces. Malleable iron unbreakable castings. Replaceable steel jaw faces.



No.	Jaw Width In.	Jaw Opening In.	Throat Depth In.	Wt. Each Lbs.
MV-44	4½	9	5⅞	63

REPLACEABLE JAW FACES

Armstrong Vises feature replaceable hardened tool steel "T" jaw faces. Drive pins anchor faces securely, so they cannot come loose, but are replaceable. Solid gripping surface covers entire jaw face area.



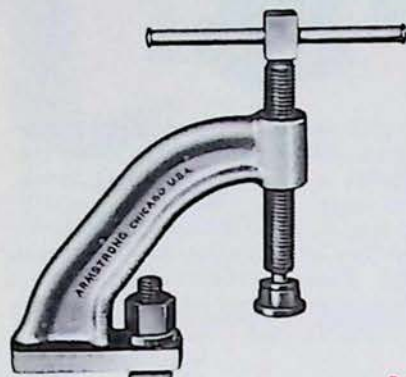
ARMSTRONG "T" SLOT CLAMPS

Drop Forged Steel

Used for holding down work on planers, drill presses, milling machines and other machines having slotted tables. One or more clamps may be mounted in "T" slot or slots

by running T-slot bolt with which each clamp is equipped into slot. Clamp is fixed in desired position by tightening nut and work is held by tightening down screw.

The clamp bodies are drop forged from a selected grade of steel, are heat treated to insure the maximum degree of strength and finished in gray baked-on enamel. The heavy duty heat-treated screw is equipped with sliding pin handle. The point is equipped with a V-slotted patented, ball-joint swivel pad (that cannot come off) to facilitate holding small rounds in addition to flat surfaces. Each clamp is furnished with one ARMSTRONG T-slot bolt, nut and washer. Separately boxed.



No.	Capacity Inches	Equipped with Armstrong T-Slot Bolt, Nut and Washer Inches	Front of Foot to Center of Screw Inches	Approx. Weight Lb.
712	0-2 1/4	1/2 x 1 1/2	2	3.10
713	0-3 1/4	5/8 x 2	2 1/4	4.63
713-B	0-3 1/4	3/4 x 2 1/2	2 1/4	5.00

ARMSTRONG "T" SLOT BOLTS



Parco-Lubrite Finish

ARMSTRONG "T" Slot Bolts are used for setting up work on planers, shapers, milling machines and other similar applications. Forged from selected steel. Will fit "T" slots without machining. Threaded American National Coarse, U.S. Std., ready for use.

Cannot turn in machine table and will not break out machine table slots.

Packaged 25 to a box in lengths up to and including 6 inches, longer lengths not boxed.

Length Under Head Inches	3/8" T-Slot Size		1/2" T-Slot Size		5/8" T-Slot Size		3/4" T-Slot Size		7/8" T-Slot Size		1" T-Slot Size	
	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.
1	7984	.05										
1 1/2	7990	.06	8281	.16	8301	.27						
2	7991	.08	8282	.18	8302	.29	8322	.49				
2 1/2	7992	.09	8283	.21	8303	.33	8323	.55	7700	.79		
3	7993	.11	8284	.24	8304	.37	8324	.60	7701	.86	7719	1.16
3 1/2	7994	.12	8285	.26	8305	.42	8325	.67	7702	.92		
4	7995	.14	8286	.29	8306	.47	8326	.73	7703	.98	7720	1.33
4 1/2			8287	.31	8307	.52	8327	.79	7704	1.04		
5	7997	.16	8288	.35	8308	.56	8328	.84	7705	1.10	7721	1.49
5 1/2			8289	.38	8309	.60	8329	.91	7706	1.17		
6	7999	.19	8290	.40	8310	.64	8330	.96	7707	1.23	7722	1.66
7			8290-A	.44	8310-A	.71	8330-A	1.10	7708	1.35	7723	1.83
8			8291	.49	8311	.75	8331	1.20	7709	1.47	7724	2.00
10			8292	.61	8312	.96	8332	1.40	7711	1.72	7726	2.34
12			8293	.71	8313	1.10	8333	1.70	7712	1.97	7727	2.68
14					8314	1.30	8334	1.70			7728	3.01
16					8315	1.50	8335	2.20			7729	3.35
18					8316	1.70	8336	2.40			7730	3.69
20					8317	1.80	8337	2.60			7731	4.03

ARMSTRONG "T" SLOT NUTS

Forged Steel

Parco-Lubrite Finish



For use with studs in "T" slots of planers, shapers, boring mills, milling machines, heavy types of punch presses and machine based castings having "T" slots. Like our "T" Slot Bolts, they will fit "T" slots without machining. Furnished tapped with American National Coarse (U.S. Std.) Threads. Packed 25 in box.

No.	T-Slot Size Inches	U.S. Std. Threads	Approx. Wt. Lb.
5-TN	5/8	1/2-13	.20
6-TN	3/4	5/8-11	.30
7-TN	7/8	3/4-10	.45
8-TN	1	7/8-9	.70

ARMSTRONG NUTS



Parco-Lubrite Finish

ARMSTRONG Nuts for T-slot bolts are made from a special steel and are heat treated. Furnished only with American National Coarse (U.S. Std.) Threads.

No.	Bolt Diam. Inches	Across Flats Inches	Thickness Inches	Approx. Wt. Lb.
*N-19	3/8	1 1/16	1/2	.06
*N-20	1/2	7/8	5/8	.08
*N-21	5/8	1 1/8	3/4	.17
†N-22	3/4	1 1/4	7/8	.25
†N-23	7/8	1 5/8	1	.34

*Packaged 100 to the box.
†Packaged 50 to the box.

ARMSTRONG WASHERS



Parco-Lubrite Finish

ARMSTRONG Washers for T-slot bolts are heavy, extra thick washers, made from high carbon cold rolled steel Heat treated. Furnished in standard packages of 100 to a box.

No.	Bolt Diam. Inches	Inside Diam. Inches	Outside Diam. Inches	Thickness Inches	Approx. Wt. Lb.
W-9	3/8	1/8	7/8	3/16	.03
W-10	1/2	3/16	1	3/16	.03
W-11	5/8	23/32	1 1/4	1/4	.06
W-12	3/4	27/32	1 1/2	1/4	.13
W-13	7/8	31/32	1 3/4	1/4	.20



ARMSTRONG MACHINE STRAP CLAMPS

Drop Forged Steel

For holding down work, dies and fixtures on planers, punch presses, milling machines, boring mills and drill presses. Drop forged from carefully selected steel, uniformly heat treated to increase strength and stiffness.

It is a profitable practice to provide a full assortment of ARMSTRONG Machine Strap Clamps for holding down work safely and securely.

ARMSTRONG PLAIN CLAMP



No.	Length Inches	Width Inches	Thick- ness Inches	SIZE OF SLOT		Approx. Weight Lb.
				Width Inches	Length Inches	
54	4	1 $\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	1.00
56	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	2 $\frac{1}{16}$	1.75
58	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{13}{16}$	3.75
59	10	2 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{5}{16}$	3 $\frac{11}{16}$	7.00

ARMSTRONG FINGER CLAMP



No.	Lgth. In.	Width Inches	Thick- ness Inches	SIZE OF SLOT		SIZE FINGER		Approx. Weight Lb.
				Width Inches	Length Inches	Diam. Inches	Length Inches	
44	4	1 $\frac{3}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	.75
46	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	1 $\frac{13}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	1.50
48	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{3}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	3.00

ARMSTRONG SCREW HEEL CLAMP



No.	Length Inches	Width Inches	Thick- ness Inches	SIZE OF SLOT		Approx. Weight Lb.
				Width Inches	Length Inches	
54-A	4	1 $\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	1.13
56-A	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	2 $\frac{1}{16}$	2.00
58-A	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{13}{16}$	4.00
59-A	10	2 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{5}{16}$	3 $\frac{11}{16}$	7.25

ARMSTRONG "U" CLAMP



No.	Lgth. In.	Width In.	Thick- ness In.	SIZE OF SLOT		SIZE FINGER		Approx. Weight Lb.
				Width Inches	Length Inches	Diam. Inches	Length Inches	
64	4	1 $\frac{3}{4}$	$\frac{3}{4}$	1 $\frac{1}{16}$	3 $\frac{1}{2}$	$\frac{9}{16}$	$\frac{9}{16}$	1.0
66	6	2	$\frac{7}{8}$	1 $\frac{1}{16}$	5 $\frac{1}{4}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$	2.0
68	8	2 $\frac{3}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	7 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	4.0
110	10	2 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{5}{16}$	9	1 $\frac{5}{16}$	1 $\frac{5}{16}$	6.5
112	12	3 $\frac{1}{4}$	1 $\frac{3}{8}$	1 $\frac{1}{16}$	11	1 $\frac{1}{16}$	1 $\frac{1}{16}$	11.0

ARMSTRONG GOOSE NECK CLAMP



No.	Lgth. In.	Width Inches	Thick- ness Inches	SIZE OF SLOT		Offset Inches	Approx. Weight Lb.
				Width Inches	Length Inches		
74	4	1 $\frac{3}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{5}{16}$	1 $\frac{3}{16}$	1.00
76	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	1 $\frac{11}{16}$	1 $\frac{5}{16}$	2.00
78	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{1}{16}$	1 $\frac{1}{8}$	4.25

ARMSTRONG SET-UP WEDGES

Used for setting-up work on planers, shapers, milling machines and other similar applications. Std. package 10.



No.	Lgth. In.	Wdth. In.	Thick End In.	Approx. Weight Lb.
3WG	3	1	$\frac{1}{4}$	.12
5WG	5	1	$\frac{1}{2}$	.31
6WG	6	1 $\frac{1}{4}$	$\frac{3}{4}$	.62

ARMSTRONG UNIVERSAL ADJUSTABLE CLAMP



Designed for holding work on planers, boring mills, drill presses, milling machines and machine based castings with "T" slots, without blocks and shims. Saddle position may be changed to keep the tie bolt vertical.

No.	Length Inches	Width Clamp Inches	Adjust- ment Inches	Max. T-Slot Bolt Size Inches	Extra Saddles No.	APPROX. Wt., Lb.	
						Extra Saddle	Com- plete
21	5 $\frac{1}{16}$	1 $\frac{5}{8}$	2 $\frac{1}{4}$	$\frac{5}{8}$	21S	.19	1.3
22	8	2 $\frac{1}{8}$	4	$\frac{3}{4}$	22S	.31	3.1
23	12	2 $\frac{3}{4}$	6 $\frac{1}{4}$	1	23S	.75	9.8



ARMSTRONG JACKS AND STEP BLOCKS

PLANER JACKS

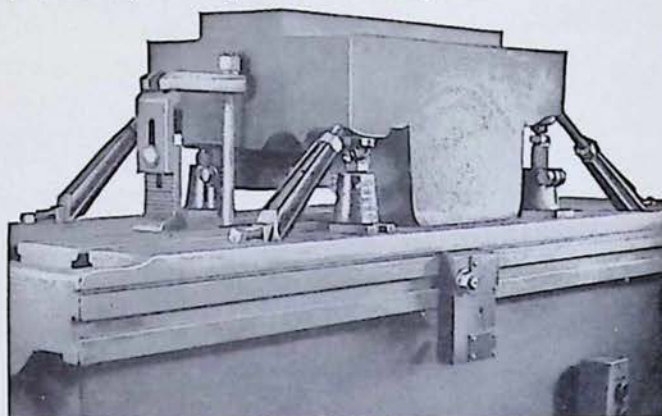
For Leveling Work on Machine Tools

ARMSTRONG Planer Jacks are designed to replace the haphazard devices and methods quite generally in use for leveling work on machine tools and a glance will show any mechanic their convenience and utility. A set of them on a machine will greatly reduce the time required for preliminary arrangements as compared with the actual time on the job, and will moreover, by their perfect adjustability and solidity, insure good, true surfaced work.

Separately boxed.



No.	HEIGHT		Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches		
1	2 $\frac{7}{8}$	3 $\frac{3}{4}$	3	1.5
2	4	5 $\frac{1}{4}$	5	3.0
3	5 $\frac{3}{8}$	7 $\frac{1}{2}$	8	6.0
4	7 $\frac{1}{2}$	12	12	12.0



Showing Use of Setting-up Tools

ADJUSTABLE STEP BLOCKS

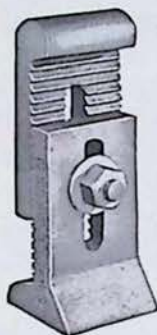
Convenient—Sturdy

ARMSTRONG Adjustable Step Blocks are used for giving various heights for set-up work in tool rooms and machine shops.

Designed to replace makeshift devices frequently used and to provide easily adjustable rigid blocking.

Made of certified malleable iron, these blocks are finished in gray baked-on enamel.

Each block is boxed separately.



No.	HEIGHT		Width of Block Inches	Adjustment Inches	Approx. Weight Lb.
	Contracted Inches	Extended Inches			
251	5 $\frac{1}{2}$	7 $\frac{3}{4}$	2 $\frac{7}{16}$	$\frac{1}{4}$	5.75

VERTICAL AND BRACING JACKS

Non-Skid—Cut Clamping Costs

These jacks combine ease of operation and great power with an absolutely straight thrust as neither base nor screw revolve; the nut is the only part which turns. This design prevents "creeping" and permits setting the jack under the fillet or sloping surface without danger of slipping.

Each jack is separately boxed.

Vertical Jacks

No.	HEIGHT		Diam. Screw Inches	Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches			
351	2 $\frac{7}{8}$	4 $\frac{1}{8}$	$\frac{5}{8}$	2	1.50
352	4 $\frac{1}{8}$	6 $\frac{5}{8}$	$\frac{5}{8}$	2	2.00
353	7 $\frac{1}{8}$	11 $\frac{1}{2}$	$\frac{3}{4}$	3	5.25
354	9	14 $\frac{3}{4}$	1	5	7.00



Vertical Jack

Bracing Jacks

No.	HEIGHT		Diam. Screw Inches	Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches			
361	3 $\frac{7}{8}$	5 $\frac{1}{2}$	$\frac{5}{8}$	2	1.00
362	4 $\frac{7}{8}$	7 $\frac{1}{4}$	$\frac{5}{8}$	2	1.50
363	7 $\frac{1}{8}$	11 $\frac{1}{2}$	$\frac{3}{4}$	3	2.75
364	9 $\frac{1}{8}$	15 $\frac{1}{2}$	$\frac{3}{4}$	3	4.00



Bracing Jack

ARMSTRONG DRILL DRIFTS

PLAIN DRILL DRIFTS



ARMSTRONG Plain Drill Drifts are drop forged from selected steel, finished and hardened. Standard package 10.

No.	Length Inches	Fitting Sockets and Sleeves	Approx. Wt., Lb.
1	5	No. 1	.13
2	6	No. 2	.25
3	7	No. 3	.50
4	8½	No. 4, 5, 6	1.00

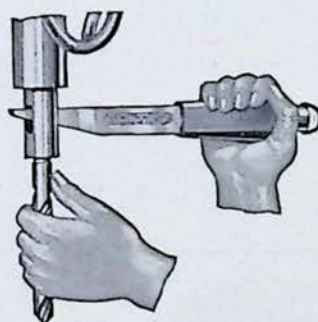
SAFETY DRILL DRIFTS

Automatic—Convenient—Effective



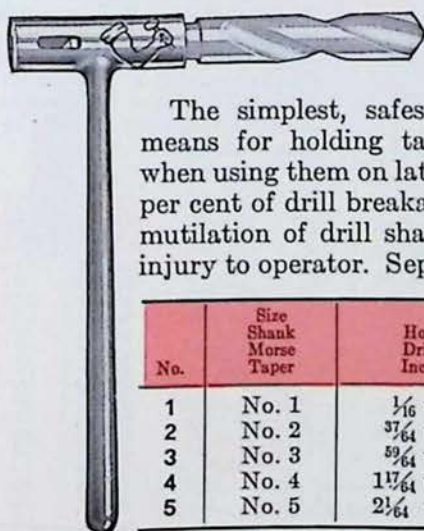
The ARMSTRONG Safety Drift combines hammer and drift, thus leaving one hand to support the tool to be removed. See illustration at right.

No.	Fits Sockets & Sleeves	Approx. Wt., Lb.
1-A	No. 1	1.50
2-A	No. 2	2.50
3-A	No. 3	3.75
4-A	No. 4, 5, 6	6.00



ARMSTRONG DRILL HOLDER

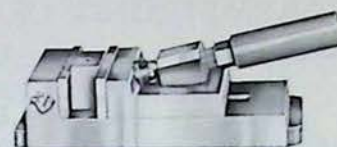
SAFETY DRILL HOLDER



The simplest, safest, most efficient means for holding taper shank drills when using them on lathe; eliminates 90 per cent of drill breakage in such work, mutilation of drill shanks and sockets, injury to operator. Separately boxed.

No.	Size Shank Morse Taper	Holds Drills, Inches	Approx. Wt., Lb.
1	No. 1	1/16 to 9/16	1.5
2	No. 2	3/16 to 29/32	2.0
3	No. 3	5/16 to 1 1/4	4.0
4	No. 4	1 1/16 to 2	7.0
5	No. 5	2 1/16 to 3	14.5

ARMSTRONG QUICK-ACTION DRILL VISE

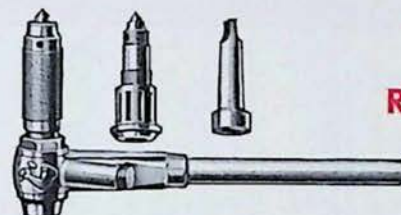


Points of Advantage:

One turn of handle sets or releases the vise.
Can be instantly adjusted to any size within its capacity.
Sides are machined true and at right angles with bottom.
Will hold work true and solid, as sliding jaw draws down.

No.	Width of Jaw Inches	Depth of Jaw Inches	Opens Inches	Leg Height Inches	Leg Width Inches	Length Overall Inches	Approx. Weight Lb.
1-V	2	15/16	1 3/4	5/16	1/4	6	4.5
2-V	2 3/4	1 3/16	2 1/2	3/16	3/8	7 3/4	8.5
3-V	3 1/2	1 7/16	3	1/16	7/16	9 3/8	16.0

ARMSTRONG REVERSIBLE RATCHET DRILLS



Standard Ratchet Combination

This combination includes sleeve ratchet for Morse Taper Shank Drills, Square Taper Socket to fit same and a short spindle with feed screw by means of which the ratchet can be converted into a boiler ratchet or adapted to use square taper shank drills.

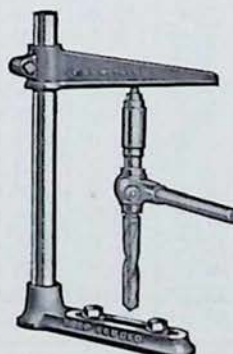
No.	Length Inches	Size of Drill Socket	Approx. Wt., Lb.
9-C	9	Standard Bit Stock and No. 1 Morse	2.50
12-C	12	No. 1 Square Taper and No. 2 Morse	5.25
15-C	15	No. 1 Square Taper and No. 3 Morse	8.00
22-C	22	No. 2 Square Taper and No. 4 Morse	17.00

ARMSTRONG DRILLING POST

Drop Forged Steel—For Use with Ratchet Drills

The foot and arm of ARMSTRONG Drilling Posts are drop forged of selected steel, carefully machined and heat treated. The finished steel post is screwed into the foot and can be easily removed for packing in a tool kit.

Each drilling post is boxed separately.



No.	Height of Post Inches	Diameter of Post Inches	Arm Radius Inches	Approximate Weight Lb.
10	20	1 1/4	10	16.0
12	26	1 1/2	12	30.0



ARMSTRONG CRANK HANDLES

Drop Forged Steel



Unfinished are plain forgings without hole in hub.

Broached have holes finished and hubs recessed or counter bored in free end, but are otherwise plain forgings.

Finished are broached, counterbored in free end of hub, ground, polished, heat treated, and finished in gray baked-on enamel.

The broached openings are made with corners slightly rounded to prevent breakage and a slight clearance is provided.

Holes regularly finished to standard sizes given below. Smaller openings than standard and special sizes, can be broached to order at extra cost.

Hubs of broached or finished can be cut to shorter lengths and handles can be offset, at additional charge.

No.	LENGTH		Handle Above Arm Inches	HUB		SQUARE HOLE SIZE BROACHED		Approx. Weight Lb.
	Center to Center Inches	Extreme Inches		Diam. Inches	Length Inches	Std. in Stock, In.	Max. to Order, In.	
00	1 3/4	2 5/8	2 3/8	1	1 1/4	1/2	5/8	.38
0	2 1/4	3 1/8	2 1/2	1	1 1/4	1/2	5/8	.43
1	3	4	2 3/4	1 1/4	1 1/2	9/16	13/16	.78
2	3 1/2	4 1/2	2 7/8	1 1/4	1 3/8	1/2	5/8	.75
4	4	5 1/8	3 1/8	1 1/4	1 3/8	9/16	13/16	1.
6	5	6 1/8	3 1/8	1 1/4	1 3/8	9/16	13/16	1.1
8	6	7 1/8	3 1/8	1 1/4	1 3/8	11/16	13/16	1.2
10	7	8 1/8	3 3/8	1 3/8	2 1/16	3/4	7/8	1.6
12	8	9 3/8	3 5/8	1 3/8	2 1/16	7/8	1	2.4
14	9 1/8	10 1/2	3 3/4	1 1/2	2 1/2	7/8	1	2.5
16	10	11 1/2	4	1 3/4	3	1	1 1/8	3.2



ARMSTRONG HOIST HOOKS

Drop Forged Selected Steel

ARMSTRONG Drop Forged Hoist Hooks are furnished in a complete range of sizes from the smallest with a safe working load of almost one ton to the largest with a safe working load of 30 tons.

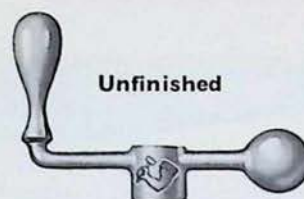
All ARMSTRONG Hoist Hooks are drop forged from the best mild steel and are heat treated to give increased tensile strength.

No.	DIAMETER OF EYE		Opening of Throat Inches	EXTREME DIMENSIONS		CAPACITY NET TONS			DIMENSIONS WITH SAFETY LATCH		Approx. Weight Lb.
	Inside Inches	Outside Inches		Length Inches	Width Inches	Safe Working Load	Average Load of Elastic Limit	Approx. Load Required to Straighten Out	T Throat Opening Inches	D Load Diameter Clearance	
22	3/4	1 1/2	1	4 3/8	2 7/8	.8	.9	1.9	7/8	2 3/32	.53
23	7/8	1 3/4	1 1/8	4 7/8	3 1/8	1.0	1.2	2.3	31/32	1 5/16	.75
24	1	2	1 1/8	5 3/8	3 1/2	1.1	1.5	3.0	1 1/32	1 5/16	1.00
25	1 1/8	2 1/4	1 1/4	6 3/16	3 7/8	1.8	2.5	5.7	1 1/8	1 1/8	1.50
26	1 1/4	2 1/2	1 3/8	6 7/8	4 3/8	2.75	3.5	7.0	1 3/32	1 1/8	2.20
27	1 3/8	2 3/4	1 1/2	7 5/8	4 7/8	3.1	4.2	8.5	1 5/16	1 13/32	3.00
28	1 1/2	3	1 3/4	8 9/16	5 5/8	3.75	5.4	10.0	1 5/8	1 1/2	4.40
29	1 5/8	3 1/4	1 7/8	9 9/16	6 3/8	5.0	6.2	13.0	1 3/4	1 11/16	6.00
30	1 3/4	3 1/2	2 1/16	11 3/8	6 7/8	5.25	8.0	17.0	1 7/8	1 13/16	8.00
31	2	4	2 1/4	11 1/2	7 1/2	5.5	9.0	19.0	2 1/16	2 1/8	10.30
32	2 3/8	4 5/8	2 1/2	13	8 1/4	8.75	11.0	26.0	2 5/16	2 5/8	14.00
33	2 3/4	5 1/4	3	14 3/4	9 1/4	11.25	13.0	32.0	2 5/32	2 1/2	20.00
34	3 1/8	6 1/8	3 3/8	16 3/4	11	12.5	17.0	35.0	3 3/32	2 13/16	31.50
35	3 1/2	7	4	19 1/8	13 1/2	20.0	21.0	48.0	3 3/4	3 1/16	51.70
36	4	8 1/2	4 1/2	22 3/4	15	25.0	40.0	80.0	4 3/16	3 11/16	86.00
*36A	4	8 1/2	4 1/2	22 3/4	15	30.0	50.0				88.00

*No. 36A Hook is made from special alloy steel; others from carbon steel.

ARMSTRONG BALANCE HANDLES

Drop Forged Steel



Unfinished

Plain forgings without any hole in hub.

No.	LENGTH			HUB		Ball Diam. Inches	Approx. Weight Lb.
	Ctr. Hub to Ctr. Handle, In.	Extreme Inches	Handle Above Arm Inches	Diam. Inches	Length Inches		
512	1 1/4	3 5/16	1 15/16	7/8	3/4	7/8	.25
516	1 5/8	4	2 1/4	7/8	7/8	1 1/4	.56
520	2	5	2 5/8	1	1 1/16	1 1/4	.75
522	2 1/4	5 1/2	2 3/4	1 1/4	1	1 3/8	1.10
*525	2 1/2	6	2 13/16	1 1/4	1 1/8	1 7/16	1.30
529	2 7/8	7	3 5/16	1 1/4	1 1/4	1 1/2	1.60
434	3 3/8	8	3 7/16	1 1/2	7/8	1 3/4	1.30
439	3 7/8	9	3 1/2	1 5/8	1 1/16	1 3/4	2.80

*Handle cone-shaped. †Hub is a sphere, flattened on top and bottom; full-size drawing on request.

SAFETY LATCH KIT

Individually packaged with complete assembly instructions.



RUST RESISTANT LATCH

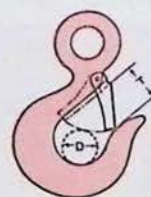


NON CORROSIVE METAL SPRING

NON CORROSIVE BOLT AND LOCK-NUT

Positive safety action is assured by these rugged latches which have powerful, non-corrosive snap springs. Loads cannot be jarred from the hook.

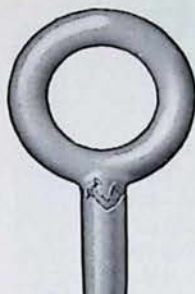
Design permits maximum throat opening and allows operator ample gripping area so that fingers will not be exposed to the load-carrying line. Individually packaged kits with complete assembly instructions contain one each of the parts illustrated.



Latch No.	Fits Hoist Hook No.
SL-22	22
SL-23	23
SL-24	24
SL-25	25
SL-26	26
SL-27	27
SL-28	28
SL-29	29
SL-30	30
SL-31	31
SL-32	32
SL-33	33
SL-34	34
SL-35	35
SL-36	36

ARMSTRONG EYE BOLTS

PLAIN PATTERN

Drop Forged-Weldless
Blank or Threaded

Blank

ARMSTRONG Eye Bolts are of strong, uniform design, drop forged from the best mild steel, heat treated to give increased tensile strength. All ARMSTRONG Eye Bolts are proof tested under quality control to fifty per cent beyond the "Safe Working Load" to assure proper service at listed capacity.

Threaded Eye Bolts of standard length available from stock with American National Coarse (U.S. Std.) threads.

$\frac{1}{4}$ " to $\frac{3}{4}$ " bolts boxed 25 to the package; $\frac{7}{8}$ " to 1", 10 to the package.

When ordering, please state whether Blank or Threaded are desired; threaded will be supplied unless otherwise specified.

Longer than standard and shorter than standard eye bolts available on special order.



Threaded

No.	SHANK			DIAMETER EYE		EYE BOLTS *SAFE WORKING LOAD IN TONS OF 2000 LB.		Approx. Weight Lb.
	Diameter, Blank Inches	Std. Length under Eye, Blank or Threaded Inches	Special Length Blank Available Up to	Inside Inches	Outside Inches	Safe Static Load	Approximate Breaking Strain	
1	$\frac{1}{4}$	1	...	$\frac{3}{4}$	$1\frac{1}{16}$	.2	1.5	.05
2	$\frac{5}{16}$	$1\frac{1}{8}$	...	$\frac{7}{8}$	$1\frac{1}{8}$	.4	2.0	.08
3	$\frac{3}{8}$	$1\frac{1}{4}$	12	1	$1\frac{1}{4}$	.7	3.0	.20
4	$\frac{7}{16}$	$1\frac{3}{8}$	12	$1\frac{1}{8}$	$1\frac{7}{8}$	1.0	4.0	.26
5	$\frac{1}{2}$	$1\frac{1}{2}$	12	$1\frac{3}{8}$	$2\frac{1}{8}$	1.3	5.0	.40
6	$\frac{9}{16}$	$1\frac{5}{8}$	12	$1\frac{5}{8}$	$2\frac{3}{8}$	1.5	6.0	.54
7	$\frac{5}{8}$	$1\frac{3}{4}$	12	$1\frac{3}{4}$	$2\frac{1}{2}$	2.0	8.0	.72
8	$\frac{3}{4}$	2	12	$1\frac{1}{2}$	$2\frac{13}{16}$	3.0	12.0	1.10
9	$\frac{7}{8}$	$2\frac{1}{4}$	12	$1\frac{11}{16}$	$3\frac{1}{4}$	3.5	16.0	1.80
10	1	$2\frac{1}{2}$	12	$1\frac{13}{16}$	$3\frac{3}{8}$	4.0	20.0	2.40
11	$1\frac{1}{8}$	$2\frac{3}{4}$	12	2	4	5.0	23.0	3.50
12	$1\frac{1}{4}$	3	12	$2\frac{3}{16}$	$4\frac{7}{16}$	7.5	33.0	4.60
14	$1\frac{1}{2}$	$3\frac{1}{2}$	18	$2\frac{1}{2}$	$5\frac{1}{8}$	9.0	42.0	7.50
15	$1\frac{3}{4}$	$3\frac{3}{4}$	18	$2\frac{7}{8}$	$6\frac{1}{8}$	11.0	53.0	12.50
16	2	4	18	$3\frac{1}{4}$	$6\frac{7}{8}$	13.0	68.0	18.00
17	$2\frac{1}{2}$	5	12	4	$8\frac{3}{16}$	16.0	85.0	31.00

WARNING: Under no circumstances should the Safe Static Load be exceeded. Side Pulls: See A.S.T.M. No. A-489 for safe loads.

SHOULDER PATTERN

On standard length Threaded Eye Bolts of Shoulder Pattern the thread runs within $\frac{1}{8}$ to $\frac{3}{8}$ inch of shoulder, which is faced.

Threaded Eye Bolts will be supplied unless Blank is specified.

Special Eye Bolts, longer than standard and shorter than standard available on special order.



Blank

No.	SHANK			DIAMETER EYE		EYE BOLTS *SAFE WORKING LOAD IN TONS OF 2000 LB.		Approx. Weight Lb.
	Diam., Blank Inches	Std. Length under Shoulder, Blank or Threaded Inches	Special Length Blank Available Up to	Inside Inches	Outside Inches	Safe Static Load	Approximate Breaking Strain	
21	$\frac{1}{4}$	1	12	$\frac{3}{4}$	$1\frac{1}{16}$	.2	1.5	.05
22	$\frac{5}{16}$	$1\frac{1}{8}$	12	$\frac{7}{8}$	$1\frac{1}{8}$	.4	2.0	.10
23	$\frac{3}{8}$	$1\frac{1}{4}$	12	1	$1\frac{1}{4}$	.7	3.0	.20
24	$\frac{7}{16}$	$1\frac{3}{8}$	12	$1\frac{1}{8}$	$1\frac{7}{8}$	1.0	4.0	.26
25	$\frac{1}{2}$	$1\frac{1}{2}$	12	$1\frac{3}{8}$	$2\frac{1}{8}$	1.3	5.0	.40
26	$\frac{9}{16}$	$1\frac{5}{8}$	12	$1\frac{5}{8}$	$2\frac{3}{8}$	1.5	6.0	.54
27	$\frac{5}{8}$	$1\frac{3}{4}$	12	$1\frac{3}{4}$	$2\frac{1}{2}$	2.0	8.0	.72
28	$\frac{3}{4}$	2	12	$1\frac{1}{2}$	$2\frac{13}{16}$	3.0	12.0	1.10
29	$\frac{7}{8}$	$2\frac{1}{4}$	12	$1\frac{11}{16}$	$3\frac{1}{4}$	3.5	16.0	1.80
30	1	$2\frac{1}{2}$	18	$1\frac{13}{16}$	$3\frac{3}{8}$	4.0	20.0	2.40
31	$1\frac{1}{8}$	$2\frac{3}{4}$	18	2	4	5.0	23.0	3.50
32	$1\frac{1}{4}$	3	18	$2\frac{3}{16}$	$4\frac{7}{16}$	7.5	33.0	4.60
34	$1\frac{1}{2}$	$3\frac{1}{2}$	18	$2\frac{1}{2}$	$5\frac{1}{8}$	9.0	42.0	7.50
35	$1\frac{3}{4}$	$3\frac{3}{4}$	18	$2\frac{7}{8}$	$6\frac{1}{8}$	11.0	53.0	12.50
36	2	4	18	$3\frac{1}{4}$	$6\frac{7}{8}$	13.0	68.0	18.00

*Proper safety factor should be used in figuring working load.



Threaded



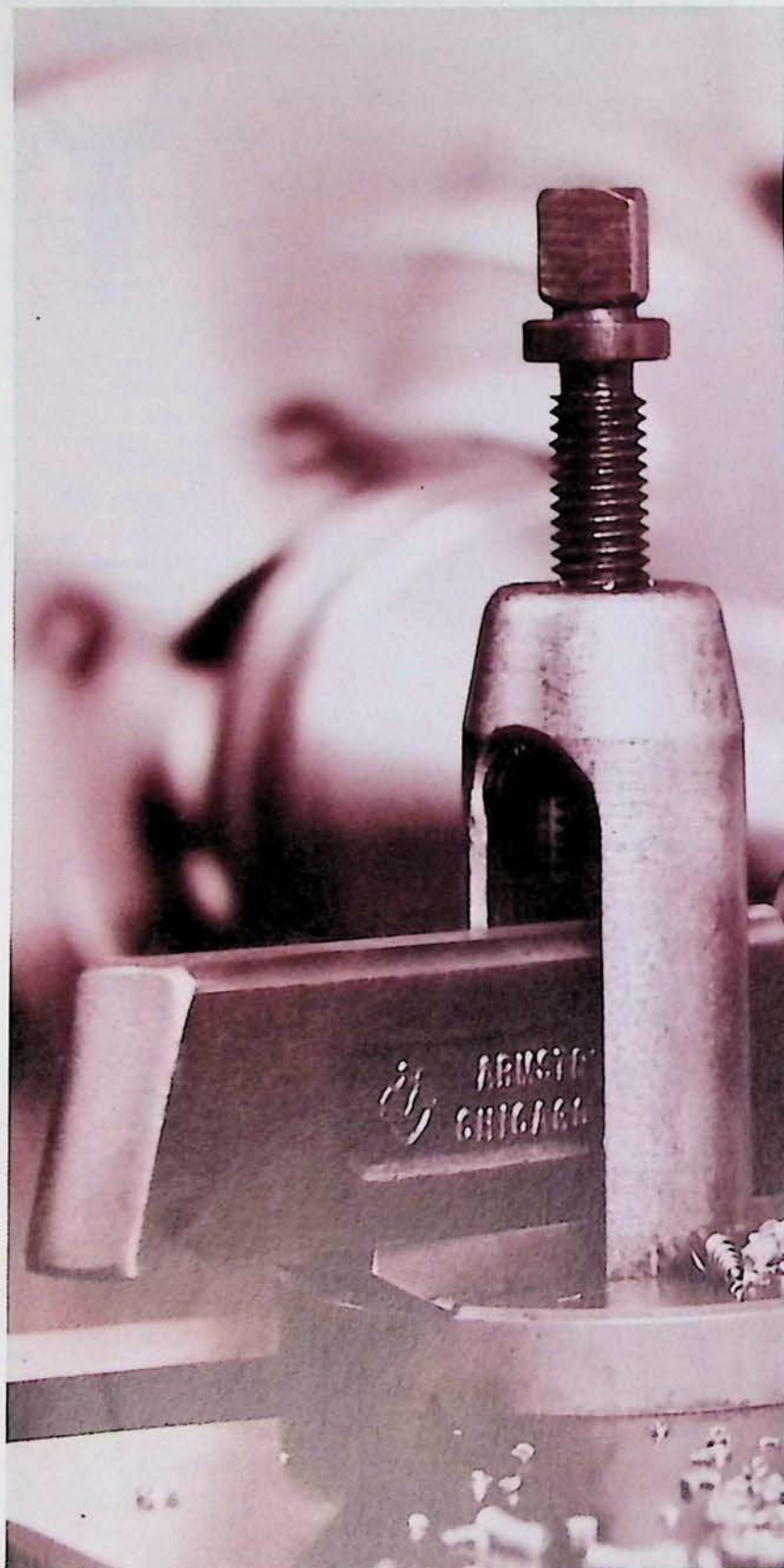
CUTTING TOOLS

ARMSTRONG offers a complete line of cutting tools to meet virtually every machining requirement—turning, boring, facing, threading, or cutting-off. Many of the cutting tools are specially designed for use in ARMSTRONG Tool Holders; all are products of the most modern metallurgical and machining technology. From these pages you can select cutting tools that offer optimum precision, production and service life in every machining operation in your plant.

"Armide" and "Armaloy" cutting tools deserve special mention because they have demonstrated their capability in plants of every type and size throughout the world. Armide is a sintered-carbide cutting material which approaches the diamond in hardness and it machines

the hardest and toughest steels, hard rubber and plastics. Armaloy is a very popular "cast alloy" with a hardness between that of the best high speed steels and the sintered carbides.

Your local ARMSTRONG Distributor has ARMSTRONG Cutting Tools in stock for immediate delivery. Call on him for assistance in selecting the correct tools for your requirements. He is ready to provide expert advice and can economically supply what you need, when you need it.





ARMSTRONG HIGH SPEED GROUND TOOL BITS

ARMSTRONG High Speed Ground Tool Bits are made of a superior grade of high speed steel. Bits are accurately ground on all four sides.

Packaged for convenient handling with proper marking for quick identification.

SQUARES

ENDS BEVELLED 10°

TUNGSTEN MOLY HIGH SPEED STEEL



No.	Size Square Inches	Overall Length Inches	Approx. Weight Lb.	No.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2376	3/16	2	.02	2382	5/8	4 1/2	.50
2377	1/4	2 1/2	.03	2383	3/4	5	.88
2378	5/16	2 1/2	.06	2384	7/8	6	1.31
2379	3/8	3	.13	2385	1	7	1.81
2380	7/16	3 1/2	.19	2386	1 1/8	8	2.69
2381	1/2	4	.25	2387	1 1/4	9	4.13

COBALT HIGH SPEED STEEL



No.	Size Square, Inches	Overall Length Inches	Approx. Weight Lb.	No.	Size Square, Inches	Overall Length Inches	Approx. Weight Lb.
2388	3/16	2	.02	2394	5/8	4 1/2	.50
2389	1/4	2 1/2	.03	2395	3/4	5	.88
2390	5/16	2 1/2	.06	2396	7/8	6	1.31
2391	3/8	3	.13	2397	1	7	1.81
2392	7/16	3 1/2	.19	2398	1 1/8	8	2.69
2393	1/2	4	.25	2399	1 1/4	9	4.13

RECTANGULARS

SQUARE ENDS

TUNGSTEN MOLY HIGH SPEED STEEL



No.	Size Inches	Overall Length Inches	Approx. Weight Lb.	No.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2701	1/4 x 3/8	2 1/2	.06	2713	3/8 x 5/8	6	.47
2702	1/4 x 1/2	3	.13	2714	3/8 x 3/4	4	.32
2703	1/4 x 1/2	4	.17	2715	3/8 x 3/4	6	.50
2704	1/4 x 1/2	6	.22	2717	1/2 x 3/4	6	.56
2706	5/16 x 1/2	3	.13	2718	1/2 x 3/4	4	.44
2707	5/16 x 1/2	3	.15	2719	1/2 x 3/4	6	.67
2708	3/8 x 1/2	3	.17	2720	1/2 x 1	8	1.18
2709	3/8 x 1/2	4	.22	2721	5/8 x 3/4	5	.69
2710	3/8 x 1/2	6	.32	2722	5/8 x 7/8	6	.94
2711	3/8 x 5/8	4	.27	2723	3/4 x 1	6	1.28
2712	3/8 x 5/8	5	.34	2724	7/8 x 1 1/8	7	1.30

COBALT HIGH SPEED STEEL



No.	Size Inches	Overall Length Inches	Approx. Weight Lb.	No.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2731	1/4 x 3/8	2 1/2	.06	2743	3/8 x 5/8	6	.47
2732	1/4 x 1/2	3	.13	2744	3/8 x 3/4	4	.32
2733	1/4 x 1/2	4	.17	2745	3/8 x 3/4	6	.50
2734	1/4 x 1/2	6	.22	2747	1/2 x 3/4	6	.56
2736	5/16 x 1/2	3	.13	2748	1/2 x 3/4	4	.44
2737	5/16 x 1/2	3	.15	2749	1/2 x 3/4	6	.67
2738	3/8 x 1/2	3	.15	2750	1/2 x 1	8	1.18
2739	3/8 x 1/2	4	.22	2751	5/8 x 3/4	5	.69
2740	3/8 x 1/2	6	.32	2752	5/8 x 7/8	6	.94
2741	3/8 x 5/8	4	.27	2753	3/4 x 1	6	1.28
2742	3/8 x 5/8	5	.34	2754	7/8 x 1 1/8	7	1.30



ARMSTRONG HIGH SPEED GROUND CUT-OFF BLADES

ARMSTRONG High Speed Ground Cut-off Blades are made of a superior grade of high speed steel. They come beveled, ready for use in ARMSTRONG Cutting-off Tools and with sides, top and bottom edges ground.



*For Straight and Right-Hand Tools

No.	For Tool Nos.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2410	19, 29-R	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2411	20, 30-R	$\frac{3}{32} \times \frac{5}{8}$	5	.13
2412	21, 31-R	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2413	22, 32-R	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2414	23, 33-R	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2415	24, 34-R	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2416	25, 35-R	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2417	26, 36-R	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in Straight and Right-Hand Spring Cutting-off tools.

TUNGSTEN MOLY HIGH SPEED STEEL

†For Left-Hand Tools

No.	For Tool Nos.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2420	29-L	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2421	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.13
2422	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2423	32-L	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2424	33-L	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2425	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2426	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2427	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

†Also for use in Left-Hand Spring Cutting-off tools.

ARMSTRONG COBALT HIGH SPEED GROUND CUT-OFF BLADES

ARMSTRONG Cobalt High Speed Ground Cut-off Blades are made of a superior grade of Cobalt High Speed steel. They come beveled, ready for use in ARMSTRONG Cutting-off Tools and with sides, top and bottom edges ground.



*For Straight and Right-Hand Tools

No.	For Tool Nos.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2540	19, 29-R	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2541	20, 30-R	$\frac{3}{32} \times \frac{5}{8}$	5	.12
2542	21, 31-R	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2543	22, 32-R	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2544	23, 33-R	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2545	24, 34-R	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2546	25, 35-R	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2547	26, 36-R	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in Straight and Right-Hand Spring Cutting-off tools.

COBALT HIGH SPEED STEEL

†For Left-Hand Tools

No.	For Tool Nos.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2550	29-L	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2551	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.12
2552	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2553	32-L	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2554	33-L	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2555	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2556	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2557	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

†Also for use in Left-Hand Spring Cutting-off Tools.

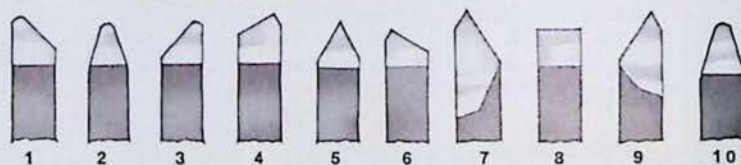
ARMSTRONG GROUND TOOL BITS

Ground to Form—High Speed Steel
For Use in ARMSTRONG Tool Holders

Armstrong Finished Form Cutters are made of a select grade of steel.

They are heat treated, hardened, ground to form and ready for use.

Specify by catalog number.



Catalog No.													
Size Square, Inches	Overall Length, Inches	Shape 1 Left-Hand Turning Tool	Shape 2 Round Nose Turning Tool	Shape 3 Right-Hand Turning Tool	Shape 4 Left-Hand Corner Tool	Shape 5 Thread-Ing Tool	Shape 6 Right-Hand Corner Tool	Shape 7 Left-Hand Side Tool	Shape 8 Square Nose Tool	Shape 9 Right-Hand Side Tool	Shape 10 Brass Tool	*Boxed Set (1 of Each Shape)	Boxed Set Approx. Wt., Lb.
$\frac{1}{4}$	$2\frac{1}{2}$	2202	2212	2222	2232	2242	2252	2262	2272	2282	2292	0415	.35
$\frac{5}{16}$	$2\frac{1}{2}$	2203	2213	2223	2233	2243	2253	2263	2273	2283	2293	0405	.60
$\frac{3}{8}$	3	2204	2214	2224	2234	2244	2254	2264	2274	2284	2294	0406	1.00

*Set No. 0136S, consisting of 1 each of shapes 1, 2, 3, 5, 6, 10, $\frac{1}{4}$ inch square bits in a box, also available.



ARMSTRONG UNGROUND TOOL BITS

Require Grinding Only to Make Them Ready for Use in ARMSTRONG Tool Holders

ARMSTRONG Unground Tool Bits are made of a superior grade of high speed steel. Carefully heat treated, hardened, tempered and tested. When ordering, please specify catalog number.

For Turning Tools

HIGH SPEED ARMSTRONG U.S.A.			
No.	Size Square, Inches	Overall Length, Inches	Approx. Weight, Lb.
2301	$\frac{3}{16}$	2	.02
2302	$\frac{1}{4}$	2 $\frac{1}{2}$	.03
2303	$\frac{5}{16}$	2 $\frac{1}{2}$	.06
2304	$\frac{3}{8}$	3	.13
2305	$\frac{7}{16}$	3 $\frac{1}{2}$	.19
2306	$\frac{1}{2}$	4	.25
2307	$\frac{5}{8}$	4 $\frac{1}{2}$	.50
2308	$\frac{3}{4}$	5	.88
2309	$\frac{7}{8}$	6	1.31
2310	1	7	1.81
2312	1 $\frac{1}{4}$	9	4.13

For Planer, Slotter and Gang Planer Tools

HIGH SPEED ARMSTRONG U.S.A.			
No.	Size Flats, In.	Overall Length, In.	Approx. Wt., Lb.
2351	$\frac{1}{4} \times \frac{3}{8}$	2 $\frac{1}{2}$	.11
2352	$\frac{5}{16} \times \frac{1}{16}$	3	.15
2353	$\frac{3}{8} \times \frac{1}{2}$	3 $\frac{1}{2}$	.19
2354	$\frac{1}{2} \times \frac{3}{4}$	4 $\frac{1}{4}$	.50
2355	$\frac{5}{8} \times \frac{1}{8}$	5	.75
2356	$\frac{3}{4} \times 1$	6	1.25
2357	$\frac{7}{8} \times 1\frac{1}{8}$	7	2.00

For Boring Tools

HIGH SPEED ARMSTRONG U.S.A.			
No.	Size Square, Inches	Overall Length, Inches	Approx. Weight, Lb.
2322	$\frac{3}{16}$	1 $\frac{1}{4}$	.01
2324	$\frac{1}{4}$	1 $\frac{3}{4}$	.02
2326	$\frac{5}{16}$	2 $\frac{1}{4}$	.05
2328	$\frac{3}{8}$	2 $\frac{5}{8}$	.11
2330	$\frac{1}{2}$	2 $\frac{7}{8}$	.15
2332	$\frac{1}{2}$	3 $\frac{1}{4}$	.20
2334	$\frac{5}{8}$	4	.40

ARMSTRONG UNGROUND BLADES

High Speed Steel

Ready for Use in ARMSTRONG Cutting-Off and Side Tools



ARMSTRONG Unground Blades are made of a superior grade of high speed steel, are heat treated, hardened and ready for use in ARMSTRONG Cutting-off and Side Tools. Approximate sizes of blades are shown. Actual sizes are somewhat less. When ordering, please specify catalog number.

Cut-Off Blades

	Straight and Right-Hand		Left-Hand		Size Inches	Length Overall Inches	Approx. Weight Lb.
	No.	*For Tool Nos.	No.	†For Tool Nos.			
	2401	19, 29-R	2451	29-L	$\frac{3}{32} \times \frac{1}{2}$	4 $\frac{1}{2}$	.06
	2402	20, 30-R	2452	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.13
	2403	21, 31-R	2453	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
	2404	22, 32-R	2454	32-L	$\frac{1}{8} \times \frac{1}{2}$	6	.25
	2405	23, 33-R	2455	33-L	$\frac{3}{16} \times 1$	6 $\frac{1}{2}$	.31
	2406	24, 34-R	2456	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
	2407	25, 35-R	2457	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
	2408	26, 36-R	2458	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in ARMSTRONG Straight and Right-Hand Spring Cutting-off Tools.

†Also for use in ARMSTRONG Left-Hand Spring Cutting-off Tools.

Side Tool Blades

	Right-Hand		Size Inches	Length Overall Inches	Approx. Weight Lb.
	No.	For Tool Nos.			
	2621	69-R, 79-R	$\frac{1}{8} \times \frac{1}{2}$	4 $\frac{1}{2}$	.06
	2622	70-R, 80-R	$\frac{3}{32} \times \frac{5}{8}$	5	.13
	2623	71-R, 81-R	$\frac{3}{16} \times \frac{3}{4}$	6	.19
	2624	72-R, 82-R	$\frac{1}{4} \times \frac{1}{2}$	7	.31
	2625	73-R, 83-R	$\frac{5}{16} \times 1$	8	.50
	2626	74-R, 84-R	$\frac{3}{8} \times 1\frac{1}{8}$	9	.75



ARMSTRONG ARMIDE® CARBIDE TIPPED CUTTERS

For Use in ARMSTRONG Carbide Tool Holders

ARMIDE is a sintered-carbide cutting material which approaches the diamond in hardness; machines the hardest and toughest steels and sand-filled castings with ease, as well as hard rubber, plastics and even glass. Cutter bits tipped with this material will hold their cutting edge much longer than the finest tool steels and will machine from 10 to 100 times as many pieces between grindings. Cutters are designed for use in ARMSTRONG Carbide Tool Holders. Available in seven standard styles and in five grades:

Grade 78—for average steel cutting.
Grade 78B—for steel roughing and general purpose.

Grade 350 for light roughing and general finishing.

Available in Style E, only.

Grade 883—for cast iron and non-ferrous work.

Grade 370—for heavy roughing of steel.

Order ARMSTRONG ARMIDE Carbide Tipped Cutters by number.

SQUARE SHANK TURNING CUTTERS



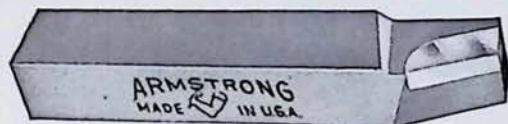
Style AL, Left-Hand



Style AR, Right-Hand

Style AL—Left-Hand				SHANK SIZE		TIP SIZE			Style AR—Right-Hand			
No.				Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	No.			
Grade 78	Grade 78B	Grade 883	Grade 370						Grade 78	Grade 78B	Grade 883	Grade 370
AL 4-78	AL 4-78B	AL 4-883	AL 4-370	1/4	1 1/2	3/32	3/16	3/16	AR 4-78	AR 4-78B	AR 4-883	AR 4-370
AL 5-78	AL 5-78B	AL 5-883	AL 5-370	5/16	2 1/4	3/32	1/4	1/2	AR 5-78	AR 5-78B	AR 5-883	AR 5-370
AL 6-78	AL 6-78B	AL 6-883	AL 6-370	3/8	2 1/2	3/32	1/4	1/2	AR 6-78	AR 6-78B	AR 6-883	AR 6-370
AL 7-78	AL 7-78B	AL 7-883	AL 7-370	7/16	3	3/32	1/4	1/2	AR 7-78	AR 7-78B	AR 7-883	AR 7-370
AL 8-78	AL 8-78B	AL 8-883	AL 8-370	1/2	3 1/2	1/8	3/16	5/8	AR 8-78	AR 8-78B	AR 8-883	AR 8-370
AL10-78	AL10-78B	AL10-883	AL10-370	5/8	4	5/32	3/8	3/4	AR10-78	AR10-78B	AR10-883	AR10-370
AL12-78	AL12-78B	AL12-883	AL12-370	3/4	4 1/2	3/16	7/16	1 3/16	AR12-78	AR12-78B	AR12-883	AR12-370

SQUARE SHANK TURNING CUTTERS



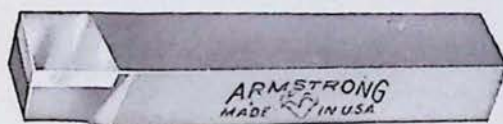
Style BL, Left-Hand



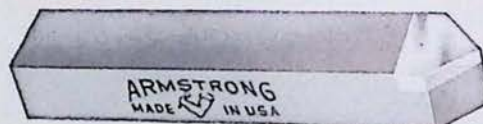
Style BR, Right-Hand

Style BL—Left-Hand				SHANK SIZE		TIP SIZE			Style BR—Right-Hand			
No.				Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	No.			
Grade 78	Grade 78B	Grade 883	Grade 370						Grade 78	Grade 78B	Grade 883	Grade 370
BL 4-78	BL 4-78B	BL 4-883	BL 4-370	1/4	1 1/2	3/32	3/16	3/16	BR 4-78	BR 4-78B	BR 4-883	BR 4-370
BL 5-78	BL 5-78B	BL 5-883	BL 5-370	5/16	2 1/4	3/32	1/4	1/2	BR 5-78	BR 5-78B	BR 5-883	BR 5-370
BL 6-78	BL 6-78B	BL 6-883	BL 6-370	3/8	2 1/2	3/32	1/4	1/2	BR 6-78	BR 6-78B	BR 6-883	BR 6-370
BL 7-78	BL 7-78B	BL 7-883	BL 7-370	7/16	3	3/32	1/4	1/2	BR 7-78	BR 7-78B	BR 7-883	BR 7-370
BL 8-78	BL 8-78B	BL 8-883	BL 8-370	1/2	3 1/2	1/8	3/16	5/8	BR 8-78	BR 8-78B	BR 8-883	BR 8-370
BL10-78	BL10-78B	BL10-883	BL10-370	5/8	4	5/32	3/8	3/4	BR10-78	BR10-78B	BR10-883	BR10-370
BL12-78	BL12-78B	BL12-883	BL12-370	3/4	4 1/2	3/16	7/16	1 3/16	BR12-78	BR12-78B	BR12-883	BR12-370

SQUARE SHANK CUTTERS



Style C, Square Nose



Style D, 80°

Style C—Square Nose				SHANK SIZE		TIP SIZE				Style D—80°			
No.				Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	Radius, Inches	No.			
Grade 78	Grade 78B	Grade 883	Grade 370							Grade 78	Grade 78B	Grade 883	Grade 370
C 4-78	C 4-78B	C 4-883	C 4-370	1/4	1 1/2	1/16	1/4	5/16	1/32	D 4-78	D 4-78B	D 4-883	D 4-370
C 5-78	C 5-78B	C 5-883	C 5-370	5/16	2 1/4	3/32	5/16	3/8	1/2	D 5-78	D 5-78B	D 5-883	D 5-370
C 6-78	C 6-78B	C 6-883	C 6-370	3/8	2 1/2	3/32	3/8	*1/2	1/16	D 6-78	D 6-78B	D 6-883	D 6-370
C 7-78	C 7-78B	C 7-883	C 7-370	7/16	3	3/32	7/16	1/2	1/16	D 7-78	D 7-78B	D 7-883	D 7-370
C 8-78	C 8-78B	C 8-883	C 8-370	1/2	3 1/2	1/8	1/2	†3/16	1/16	D 8-78	D 8-78B	D 8-883	D 8-370
C10-78	C10-78B	C10-883	C10-370	5/8	4	5/32	5/8	5/8	3/32	D10-78	D10-78B	D10-883	D10-370
C12-78	C12-78B	C12-883	C12-370	3/4	4 1/2	3/16	3/4	3/4	3/32	D12-78	D12-78B	D12-883	D12-370

*C6-78, C6-78B, C6-883 and C6-370—3/8 inch.

†C8-78, C8-78B, C8-883 and C8-370—1/2 inch.



ARMSTRONG ARMIDE CARBIDE TIPPED CUTTERS

For Use in ARMSTRONG Carbide Tool Holders

SQUARE SHANK THREADING CUTTERS



Style E, 60°

Style E-60°		SHANK SIZE			TIP SIZE	
No.	No.	Square, Inches	Length, Inches	Thickness, Inches	Width, Inches	Length, Inches
Grade 78B	Grade 350					
E 4-78B	E 4-350	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{1}{16}$	$\frac{1}{4}$	$\frac{3}{16}$
E 5-78B	E 5-350	$\frac{5}{16}$	$2\frac{1}{4}$	$\frac{3}{32}$	$\frac{5}{16}$	$\frac{3}{8}$
E 6-78B	E 6-350	$\frac{3}{8}$	$2\frac{1}{2}$	$\frac{3}{32}$	$\frac{3}{8}$	$\frac{1}{2}$
E 7-78B	E 7-350	$\frac{7}{16}$	3	$\frac{3}{32}$	$\frac{7}{16}$	$\frac{1}{2}$
E 8-78B	E 8-350	$\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{9}{16}$
E10-78B	E10-350	$\frac{5}{8}$	4	$\frac{5}{32}$	$\frac{5}{8}$	$\frac{5}{8}$
E12-78B	E12-350	$\frac{3}{4}$	$4\frac{1}{2}$	$\frac{3}{16}$	$\frac{3}{4}$	$\frac{3}{4}$

ARMIDE should be held parallel to the tool holder shank. Use ARMSTRONG Carbide Tool Holders ONLY—Specially designed for these cutters.

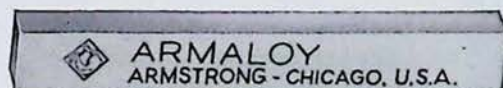
For Carbide Tool Holders especially designed for use with ARMIDE Cutters, see page 7

ARMSTRONG ARMALLOY® TOOL BITS AND CUT-OFF BLADES

"Cast-Alloy"

ARMSTRONG ARMALLOY Tool Bits and Cut-Off Blades are made from an improved "cast alloy" with a hardness between that of the best high speed steels and the sintered carbides. ARMALLOY may be used for both roughing and finishing cuts in practically all machining operations on steel, malleable iron, cast iron, non-ferrous metals, rubber and plastics.

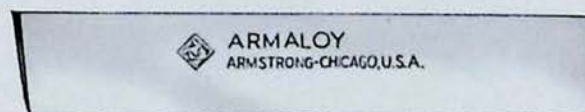
ARMALLOY TOOL BITS



ARMALLOY Tool Bits come ready to grind to cutter shape. Each is a finished tool surface ground to exact size to fit the corresponding ARMSTRONG "C-A" Tool Holder. Specify catalog number.

No.	Size Square Inches	Overall Length Inches	For Tool Holder Nos.	Approx. Weight Lb.
2641	$\frac{1}{4}$	$2\frac{1}{8}$	XX-0-S, XX-0-L, XX-0-R	.03
2642	$\frac{5}{16}$	$2\frac{1}{2}$	XX-1-S, XX-1-L, XX-1-R	.11
2643	$\frac{3}{8}$	3	XX-2-S, XX-2-L, XX-2-R	.13
2644	$\frac{7}{16}$	$3\frac{1}{2}$	XX-3-S, XX-3-L, XX-3-R	.18
2645	$\frac{1}{2}$	4	XX-4-S, XX-4-L, XX-4-R	.31
2646	$\frac{5}{8}$	$4\frac{1}{2}$	XX-5-S, XX-5-L,	.56
2647	$\frac{3}{4}$	5	.....	.88

ARMALLOY CUT-OFF BLADES



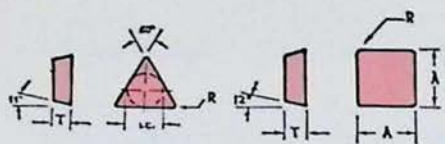
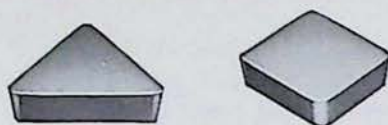
ARMALLOY Cut-off blades are designed for use in standard ARMSTRONG cutting-off tools. They come ground to shape and are of "beveled" design tapered on both sides for clearance. Sides, top and bottom edges ground. Order by number.

No.	Size Inches	Overall Length Inches	For Cut-Off Tool Nos.	Approx. Weight Lb.
2669	$\frac{1}{8} \times \frac{3}{4}$	6	21, 31-L, 31-R	.25
2670	$\frac{1}{8} \times \frac{7}{8}$	6	22, 32-L, 32-R	.33
2671	$\frac{3}{16} \times 1$	6	23, 33-L, 33-R	.43
2672	$\frac{3}{16} \times 1\frac{1}{8}$	6	24, 34-L, 34-R	.48
2673	$\frac{1}{4} \times 1\frac{1}{4}$	6	25, 35-L, 35-R	.66



ARMSTRONG ARMIDE "THROW AWAY" CARBIDE INSERTS

POSITIVE RAKE INSERTS



ARMIDE Inserts for use in ARMSTRONG Carbide Insert Tool Holders are furnished in two finishes and three grades of carbide. Finishes available are:

Utility—with top, bottom and corner radii ground.

Precision—with all surfaces ground, including radii.

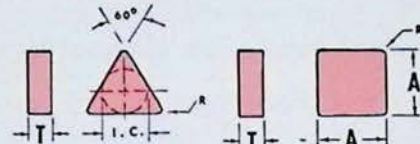
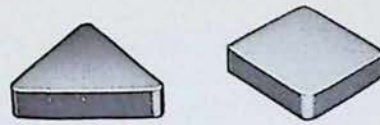
Inserts available in carbide grades:

Grade 350: for light roughing and general finishing of steel.

Grade 370: for heavy roughing of steel.

Grade 883: for general purpose roughing and finishing; for cast iron, brass, steels.

NEGATIVE RAKE INSERTS



When ordering inserts, specify No., finish (Utility or Precision) and grade (350, 370, 883) required.

POSITIVE RAKE

Insert Catalog No.	Insert Dimensions			Finish*	For Tool Numbers
	L.C.	T	R		
(Triangular)					
TBC122P2	3/8	1/8	1/32	P	TR1P, TL1P
†TBC163P3	1/2	3/16	3/64	P	TR2P, TL2P, TR3P, TL3P
(Square)					
SQC162P2	1/2	1/8	1/32	P	SR1P, SL1P
†SQC243P4	3/4	3/16	1/16	P	SR2P, SL2P, SR3P, SL3P

NEGATIVE RAKE

Insert Catalog No.	Insert Dimensions			Finish*	For Tool Numbers
	L.C.	T	R		
(Triangular)					
TB122U3	$\frac{3}{8}$	$\frac{1}{8}$	$\frac{3}{64}$	U	TR1N, TL1N
TB122P3	$\frac{3}{8}$	$\frac{1}{8}$	$\frac{3}{64}$	P	TR1N, TL1N
†TB163U4	$\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{16}$	U	TR2N, TL2N, TR3N, TL3N
†TB163P4	$\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{16}$	P	TR2N, TL2N, TR3N, TL3N
(Square)					
SQ162U2	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{32}$	U	SR1N, SL1N
SQ162P2	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{32}$	P	SR1N, SL1N
†SQ243U4	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{1}{16}$	U	SR2N, SL2N, SR3N, SL3N
†SQ243P4	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{1}{16}$	P	SR2N, SL2N, SR3N, SL3N

*P—Precision, U—Utility. Standard package 10. except where noted - - - †Standard package 5.

Triangular



CHIP BREAKERS

Solid Carbide

Specify for Heavy or Light Cut

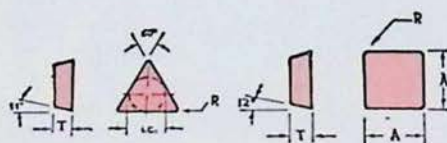


Square

Heavy Cut No.	Light Cut No.	For Tool Holder Nos.
CTB12	LCTB12	TR1N, TL1N, TR1P, TL1P
CTB16	LCTB16	TR2N, TL2N, TR3N, TL3N, TR2P, TL2P, TR3P, TL3P

Heavy Cut No.	Light Cut No.	For Tool Holder Nos.
CSQ16	LCSQ16	SR1N, SL1N, SR1P, SL1P
CSQ24	LCSQ24	SR2N, SL2N, SR3N, SL3N, SR2P, SL2P, SR3P, SL3P

POSITIVE RAKE INSERTS



ARMSTRONG SUPER HIGH SPEED "THROW AWAY" INSERTS

Outstanding toughness, unusual wear resistance, high red hardness (68-70RC) are the physical properties that give such excellent quality to Armstrong Super High Speed Inserts. They are made to carbide insert tolerances and should be used with chip breakers in Armstrong positive rake insert tool holders.

The problems encountered by machining ultra high strength alloys, refractory metals, or other hard or abrasive materials may be answered by using Armstrong Super High Speed inserts.

Armstrong Super High Speed inserts can also be used to good advantage on indexable tip boring bars and face mills not requiring a center hole for clamping.

POSITIVE RAKE, TRIANGULAR

Catalog Number	L.C.	Dimensions T.	R.
TP375	3/8"	1/8"	1/32"
†TP500	1/2"	3/16"	1/32"

POSITIVE RAKE, SQUARE

Catalog Number	A.	Dimensions T.	R.
SQP500	1/2"	1/8"	1/32"
†SQP750	3/4"	3/16"	1/32"

Standard package 10. except where noted - - - †Standard package 5.

See page 5 for Insert Tool Holders



WRENCHES

ARMSTRONG Wrenches and Socket Wrenches are offered in a very wide range of sizes and types and are available individually or in sets to meet virtually every industrial (or personal) requirement. From the smallest to the largest sizes, every ARMSTRONG Tool provides the strength, appearance and "fit" that make them best sellers among discriminating buyers and users.

Every tool in the ARMSTRONG Line has been designed and manufactured with one thought in mind: to give the user a wrench that will serve him well and long . . . a wrench he can depend on year after year to do the job for which it is intended. And remember—every ARMSTRONG Tool is sold with the guarantee that offers you complete protection: if the tool fails to give complete satisfaction, it will be repaired or replaced free of charge.

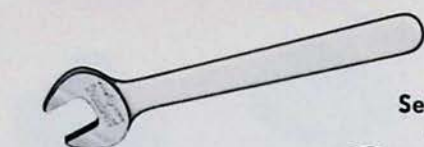
Your nearby ARMSTRONG Industrial Distributor can provide expert assistance in the selection or application of ARMSTRONG Wrenches

and Socket Wrenches. In addition, he maintains representative stocks of tools for immediate delivery. Should your requirements indicate special styles or sizes, he can help you save time and money by expediting delivery or handling all the details to assure prompt service and satisfaction. He really is "The Right Hand of Production."



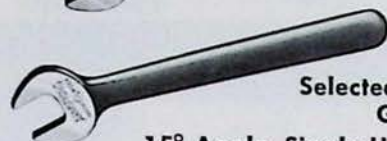
ARMSTRONG WRENCHES

ENGINEERS' PATTERN



ARMALOY

Selected Alloy Steel
Chrome Plated

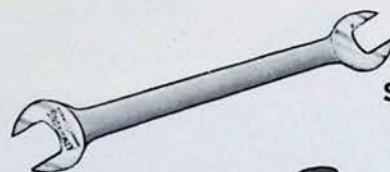


HI-TEN

Selected High Strength Steel
Gray Enameled

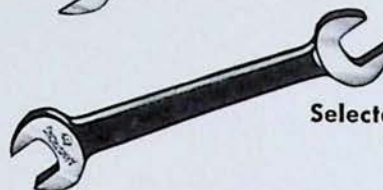
15° Angle, Single Head—Drop Forged

Armaloy No.	Hi-Ten No.	Nominal Opening Inches	Approx. Extreme Length, Inches	Approx. Weight Lb.
....	S-000	3/16	3 1/2	.03
....	S-00	1/4	3 1/2	.05
1000	00	5/16	3 1/2	.07
1700	700	3/8	4	.09
1701	701	7/16	4 1/2	.13
1001	1	1/2	4 1/2	.13
1702	702	9/16	5 5/8	.22
....	2	19/32	5 3/8	.22
1703	703	5/8	6 3/8	.33
1003	3	1 1/16	6 3/8	.33
1704	704	3/4	7 1/4	.48
....	4	25/32	7 1/4	.48
1705	705	13/16	8 1/4	.65
1005	5	7/8	8 1/4	.65
1006	6	15/16	9	.92
....	6-C	31/32	9	.92
1706	706	1	9	1.50
1007	7	1 1/16	10 1/2	1.50
1707	707	1 1/8	10 1/2	1.50
1008	8	1 1/4	11 3/4	2.20
1008-A	8-A	1 1/16	11 3/4	2.20
....	708-A	1 3/8	11 3/4	2.00
1009	9	1 1/16	13 1/2	2.80
1709	709	1 1/2	13 1/2	2.80
1010	10	1 5/8	15 1/4	3.90
1010-A	10-A	1 11/16	15 1/4	3.90
1011	11	1 13/16	17	4.80
1011-A	11-A	1 7/8	17	4.80
1012	12	2	19	6.20
1012-A	12-A	2 1/16	19	6.20
1013	13	2 3/16	21	8.00
1013-A	13-A	2 1/4	21	8.00
1014	14	2 3/8	23	10.00
1014-A	14-A	2 7/16	23	10.00
....	15	2 5/16	25	11.10
....	15-A	2 5/8	25	11.10
....	16	2 3/4	27	13.60
....	16-B	2 13/16	27	13.60
....	16-A	2 15/16	27	13.60
....	17-A	3	30	18.90
....	17	3 1/8	30	18.90
....	18-A	3 3/8	33	28.10
....	18	3 1/2	33	26.50
....	19-B	3 3/4	37	33.10
....	19	3 7/8	37	33.10
....	19-C	4 1/8	37	31.50
....	19-A	4 1/4	37	32.30
....	20-B	4 1/2	42	50.50
....	20	4 5/8	42	50.50
....	20-A	5	42	50.40
....	21-A	5 3/8	47	90.50
....	21-B	5 3/4	47	90.50
....	21-C	6 1/8	47	85.50
....	22-A	6 7/8	52	156.00
....	22-B	7 5/8	52	149.00



ARMALOY

Selected Alloy Steel
Chrome Plated



HI-TEN

Selected High Strength Steel
Gray Enameled

15° Angle, Double Head—Drop Forged

Armaloy No.	Hi-Ten No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Wt. Lb.
1019	...	3/16 & 1/4	3 7/8	.02
1021-S	...	1/4 & 5/16	3 7/8	.05
1720	...	5/16 & 11/32	4 1/2	.05
721	...	5/16 & 3/8	4 1/2	.05
1021	...	5/16 & 13/32	4 1/2	.05
....	722	5/16 & 7/16	4 7/8	.11
1723	723	3/8 & 7/16	4 7/8	.07
1723-A	723-A	3/8 & 1/2	5 1/4	.08
1023	...	13/32 & 1/2	5 1/4	.08
....	24	13/32 & 19/32	6 1/8	.20
1725	725	7/16 & 1/2	5 5/8	.10
1725-A	725-A	7/16 & 9/16	6 1/8	.13
1725-B	725-B	1/2 & 9/16	6 1/8	.13
1025	25	1/2 & 19/32	6 1/8	.13
....	726	1/2 & 5/8	6 5/8	.34
....	26	1/2 & 11/16	7 1/4	.34
1727	727	9/16 & 5/8	6 5/8	.20
1027-C	27-C	9/16 & 11/16	7 1/4	.26
1027	27	19/32 & 11/16	7 1/4	.26
1027-B	27-B	5/8 & 11/16	7 1/4	.26
....	728	9/16 & 3/4	7 7/8	.40
1028	...	19/32 & 25/32	7 7/8	.30
1729	729	5/8 & 3/4	7 7/8	.30
1028-S	...	5/8 & 25/32	7 7/8	.30
1029-B	29-B	11/16 & 3/4	8 1/2	.35
1029	29	11/16 & 25/32	8 1/2	.35
1029-C	29-C	11/16 & 13/16	8 1/2	.35
....	730	5/8 & 13/16	8 1/2	.61
1030	30	11/16 & 7/8	8 1/2	.45
1731	731	3/4 & 13/16	9 1/4	.54
1731-A	731-A	3/4 & 7/8	9 1/4	.54
1031-B	...	25/32 & 13/16	9 1/4	.54
1031	31	25/32 & 7/8	9 1/4	.54
1731-B	731-B	13/16 & 7/8	9 1/4	.54
1032-B	32-B	13/16 & 15/16	9 1/4	.71
1033-A	33-A	7/8 & 15/16	10	.71
1733	733	7/8 & 1	10 7/8	.92
1033-C	33-C	15/16 & 1	10 7/8	.92
1034	34	7/8 & 1 1/16	12	.90
....	734	7/8 & 1 1/8	12	1.33
1034-A	34-A	15/16 & 1 1/16	12	.90
1734-A	734-A	15/16 & 1 1/8	12	.90
1035	35	31/32 & 1 1/16	12	.90
1735	735	1 & 1 1/8	12	.90
1036-B	36-B	1 1/16 & 1 1/8	14	1.25
1037	37	1 1/16 & 1 1/4	14	1.25
1737	737	1 1/8 & 1 1/4	14	1.40
1037-A	37-A	1 1/8 & 1 1/16	14	1.90

Continued on next page

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

15° Angle, Double Head
Drop Forged

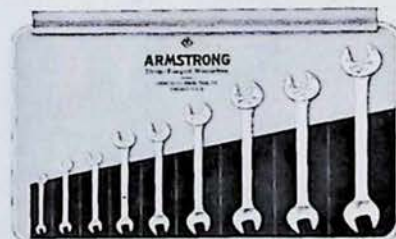
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Armalo No.	Hi-Ten No.	Nominal Openings Inches	Approx. Extreme Length Inches	Approx. Weight Lb.
1039-B	39-B	1 1/4 & 1 3/16	16 3/8	1.80
1039	39	1 1/4 & 1 3/16	16 3/8	2.30
1039-A	39-A	1 3/16 & 1 1/2	16 3/8	2.30
1039-C	39-C	1 3/8 & 1 3/16	16 3/8	2.50
1040	40	1 1/4 & 1 3/8	18 1/4	2.70
1041	41	1 3/16 & 1 5/8	18 1/4	2.70
1041-B	41-B	1 1/2 & 1 5/8	18 1/4	2.70
....	42	1 3/16 & 1 13/16	17	5.50
....	42-A	1 1/2 & 1 13/16	17	5.80
....	43	1 5/8 & 1 13/16	17	5.80
....	44	1 5/8 & 2	19	7.80
....	44-A	1 11/16 & 1 7/8	19	7.30
....	45	1 13/16 & 2	19	7.10
....	45-A	1 7/8 & 2 1/16	19	6.70
....	47	2 & 2 3/16	21	9.30
....	47-B	2 1/16 & 2 1/4	21	9.30
....	48	2 & 2 3/8	23	13.00
....	49	2 3/16 & 2 3/8	23	11.90
....	49-A	2 1/4 & 2 3/16	23	12.25
....	51	2 3/8 & 2 3/16	25	13.30
....	51-A	2 3/16 & 2 5/8	25	13.30
....	53	2 3/16 & 2 3/4	27	16.70
....	53-A	2 5/8 & 2 13/16	27	16.50
....	54-C	2 3/4 & 2 15/16	31	23.80
....	55-A	2 13/16 & 3	32	25.00
....	55-B	2 15/16 & 3 1/8	32	25.00
....	57-B	3 & 3 3/8	37	36.00
....	57	3 1/8 & 3 1/2	37	37.00
....	58	3 1/2 & 3 7/8	37	46.00

ARMSTRONG ENGINEERS' WRENCH SETS

15° Angle, Double Head

ARMALLOY
Selected Alloy Steel
Set No. 9A-38R



Nine wrenches, openings 3/8 to 1 5/8"; no duplications.

No.	Nominal Openings Inches	No.	Nominal Openings Inches
1723	3/8 & 7/16	1033-C	1 5/16 & 1
1025	1/2 & 19/32	1037	1 1/16 & 1 1/4
1727	9/16 & 5/8	1037-A	1 1/8 & 1 5/16
1029	1 1/16 & 25/32	1041	1 1/16 & 1 5/8
1731-A	3/4 & 7/8		

Set No. 9A-38R, in Roll No. R-1; Approximate Wt., 9.5 Lb.
Set No. 9A-38C, in Cardboard Box; Approx. Wt., 9 Lb.

ARMSTRONG ENGINEERS' WRENCH SETS

15° Angle, Double Head

ARMALLOY
Set No. 6A-26R

Six wrenches,
openings 3/8 to 1";
no duplications.



No.	Nominal Openings Inches	No.	Nominal Openings Inches
1723	3/8 & 7/16	1029	1 1/16 & 25/32
1025	1/2 & 19/32	1731-A	3/4 & 7/8
1727	9/16 & 5/8	1033-C	15/16 & 1

Set No. 6A-26R, in Roll No. R-3; Approx. Wt., 2.25 Lb.
Set No. 6A-26C, in Cardboard Box; Approx. Wt., 2.00 Lb.

HI-TEN
Set No. 6-26R

Six wrenches,
openings 3/8 to 1";
no duplications.

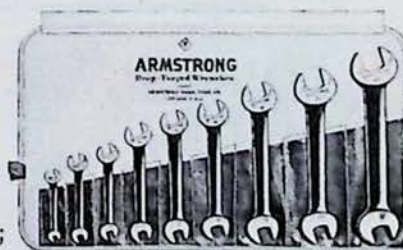


No.	Nominal Openings Inches	No.	Nominal Openings Inches
723	3/8 & 7/16	29	1 1/16 & 25/32
25	1/2 & 19/32	731-A	3/4 & 7/8
727	9/16 & 5/8	33-C	15/16 & 1

Set No. 6-26R, in Roll No. R-3; Approximate Wt., 2.75 Lb.
Set No. 6-26C, in Cardboard Box; Approx. Wt., 2.50 Lb.

HI-TEN
Set No. 9-38R

Nine wrenches,
openings 3/8 to 1 5/8";
no duplications.



No.	Nominal Openings Inches	No.	Nominal Openings Inches
723	3/8 x 7/16	33-C	1 5/16 & 1
25	1/2 & 19/32	37	1 1/16 & 1 1/4
727	9/16 & 5/8	37-A	1 1/8 & 1 5/16
29	1 1/16 & 25/32	41	1 1/16 & 1 5/8
731-A	3/4 & 7/8		

Set No. 9-38R, in Roll No. R-1; Approximate Wt., 10.75 Lb.
Set No. 9-38C, in Cardboard Box; Approximate Wt., 10.25 Lb.

See page 81 for descriptions of all plastic rolls



ARMSTRONG HI-TEN WRENCHES

THIN PATTERN

For Check, Jam or Lock Nuts
Drop Forged—Selected High Strength Steel
Gray Enameled

15° Angle, Single Head Wrenches

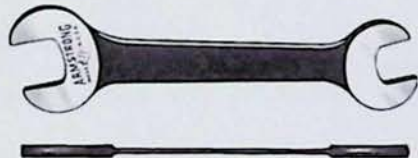


No.	Nominal Opening Inches	Approx. Extreme Length, In.	Thickness Head Inches	Approx. Weight Lb.
601-A	7/16	3 15/16	5/32	.08
601	1/2	3 15/16	5/32	.08
602-A	9/16	4 7/16	11/64	.12
603-A	5/8	5 1/8	3/16	.16
603	11/16	5 1/8	3/16	.16
604-A	3/4	6	7/32	.23
604	25/32	6	7/32	.23
605-A	13/16	6 3/4	1/4	.33
605	7/8	6 3/4	1/4	.33
606	15/16	7 1/2	9/32	.48
606-B	1	7 1/2	9/32	.48
607	1 1/16	8 1/2	5/16	.66
607-A	1 1/8	8 1/2	5/16	.66
608	1 1/4	10	3/8	1.10
608-A	1 3/16	10	3/8	1.10
609	1 1/2	11 1/2	7/16	1.60
609-A	1 5/8	11 1/2	7/16	1.60
610	1 5/8	13	1/2	2.50
610-A	1 11/16	13	1/2	2.50

THIN PATTERN

For Check, Jam or Lock Nuts
Drop Forged—Selected High Strength Steel
Gray Enameled

15° Angle, Double Head Wrenches



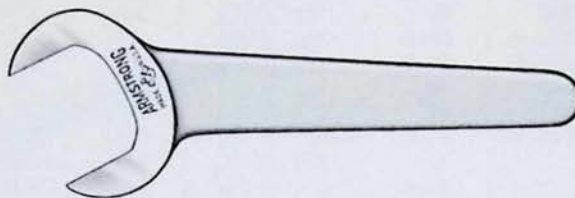
No.	Normal Openings Inches	Approx. Extreme Length, In.	Thickness Head Inches	Approx. Weight Lb.
623-D	7/16 & 1/2	4 1/2	5/32	.13
624-A	7/16 & 9/16	4 1/2	5/32	.13
624-B	1/2 & 9/16	4 1/2	5/32	.11
626-S	9/16 & 5/8	5 5/8	3/16	.17
627	19/32 & 11/16	5 5/8	3/16	.19
629-D	5/8 & 3/4	6 5/8	7/32	.23
630-E	3/4 & 7/8	6 5/8	7/32	.33
631-A	13/16 & 7/8	6 5/8	7/32	.34
634-A	7/8 & 1	8 1/8	9/32	.59
634	7/8 & 1 1/16	8 1/8	9/32	.57
632-X	15/16 & 1	8 1/8	9/32	.57
635-D	1 & 1 1/8	10	11/32	1.00
637	1 1/16 & 1 1/4	10	11/32	.95
637-A	1 1/8 & 1 1/16	10	11/32	.95
639	1 1/4 & 1 7/16	12	13/32	1.84
640	1 1/4 & 1 5/8	12	13/32	1.84
640-A	1 3/16 & 1 1/2	12	13/32	1.80

ARMSTRONG ARMALLOY WRENCHES

OPEN END—THIN PATTERN

30° Angle—Single Head
Drop Forged—Selected Alloy Steel—Chrome Plated

"PUMP WRENCHES"



Accurately milled. Smoothly burnished. Carefully hardened and tempered.

Finished in chrome plate.

Wrench heads are buffed bright. Wrenches plainly stamped with catalog number and nominal openings.

Especially designed for adjusting machinery where short handle, thin wrench is required.

Use with added leverage is not recommended.

Wrenches with special openings available on special order.

No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Width Inches	
1224	3/4	6 5/16	1/4	1 11/16	.20
*1224-A	1 1/8	7 1/16	1/4	1 7/8	.23
1226	13/16	6 5/16	1/4	1 11/16	.25
1228	7/8	6 5/16	1/4	1 11/16	.17
1230	15/16	7 1/16	1/4	1 7/8	.22
1232	1	7 1/16	1/4	1 7/8	.22
1232-A	1 1/32	6 5/16	1/4	1 11/16	.28
1234	1 1/16	7 1/16	1/4	1 7/8	.28
1236	1 1/8	7 1/16	1/4	2 1/16	.28
1236-S	1 5/16	7 1/16	1/4	2 1/16	.28
1236-X	1 5/16	7 1/16	7/32	2 1/16	.28
1238	1 3/16	7 1/16	1/4	2 1/16	.28
1240	1 1/4	7 1/16	1/4	2 1/16	.28
1241	1 9/32	7 1/16	1/4	2 1/16	.28
1242	1 5/16	7 13/16	9/32	2 1/2	.42
1244	1 3/8	7 13/16	9/32	2 1/2	.42
1246	1 7/16	7 13/16	9/32	2 1/2	.42
1248	1 1/2	7 13/16	9/32	2 1/2	.42
1250	1 9/16	7 13/16	9/32	2 5/8	.42
1252	1 5/8	7 13/16	9/32	2 5/8	.42
1254	1 11/16	7 13/16	9/32	2 5/8	.42
1256	1 3/4	8 5/8	5/16	3 1/8	1.06
1258	1 13/16	8 5/8	5/16	3 1/8	1.06
1260	1 7/8	8 5/8	5/16	3 1/8	1.06
1262	1 15/16	8 5/8	5/16	3 1/8	1.06
1264	2	8 5/8	5/16	3 1/2	1.06
1266	2 1/16	8 5/8	5/16	3 1/2	1.06
1268	2 3/8	8 5/8	5/16	3 1/2	1.06
1272	2 1/4	8 5/8	5/16	3 1/2	1.06
1276	2 3/8	8 5/8	5/16	3 1/2	1.06
1272-S	2 1/2	8 5/8	5/16	3 1/2	1.06

*Extra narrow head for working in close quarters; recommended for light work only.

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

ARMSTRONG ARMALLOY WRENCHES

TAPPET PATTERN

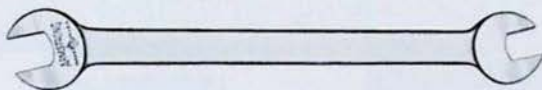
Drop Forged—Selected Alloy Steel—
Chrome Plated

Accurately milled. Smoothly burnished. Carefully hardened and tempered. Chrome plated.

Wrench heads are buffed bright. Wrenches plainly stamped with catalog number and nominal opening. Openings milled slightly larger than nominal sizes listed to allow for proper clearance.

Wrenches with special openings available on special order.

15° Angle—Double Head



Has 15° angle openings at both ends. Different size openings at each end. The long, thin design of this wrench combines lightness with strength.

No.	Nominal Openings Inches	Approx. Extreme Length, In.	Thickness Heads Inches	Approx. Weight Lb.
1090-A	$\frac{3}{8}$ & $\frac{1}{2}$	8	$\frac{5}{32}$	.09
1090	$\frac{1}{2}$ & $\frac{3}{4}$	8	$\frac{5}{32}$	.09
1090-G	$\frac{1}{2}$ & $\frac{17}{32}$	8	$\frac{5}{32}$	.19
1090-D	$\frac{1}{2}$ & $\frac{3}{4}$	8	$\frac{5}{32}$	.19
1092	$\frac{5}{16}$ & $\frac{3}{8}$	8½	$\frac{3}{16}$	.22
1092-F	$\frac{5}{8}$ & $\frac{11}{16}$	8½	$\frac{3}{16}$	.22
1094-G	$\frac{3}{4}$ & $\frac{13}{16}$	9	$\frac{3}{16}$	.34
1094	$\frac{3}{4}$ & $\frac{7}{8}$	9	$\frac{3}{16}$	.34
1096	$\frac{1}{2}$ & 1	9	$\frac{3}{16}$	.34

TAPPET WRENCH SET



Set No. 1042R

Set consists of eight wrenches, furnished in pairs, openings for tappets, sizes $\frac{1}{16}$ to $\frac{7}{8}$ ".

Two Each Nos.	Nominal Openings Inches	Approx. Extreme Length, In.	Approx. Wt. Lb.
1090	$\frac{1}{16}$ & $\frac{1}{2}$	8	.09
1090-D	$\frac{1}{2}$ & $\frac{3}{16}$	8	.19
1092-F	$\frac{5}{8}$ & $\frac{11}{16}$	8½	.22
1094	$\frac{3}{4}$ & $\frac{7}{8}$	9	.34

Set No. 1042R, in Roll No. R-15; Approximate Weight 2.75 Lb.

ARMSTRONG ARMALLOY MINIATURE WRENCHES AND SETS

Miniature Set No. H-5R

Open End Pattern



15° Angle Openings

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Approx. Thickness Heads Inches	Approx. Weight Lb.
H-9	$\frac{13}{64}$ & $\frac{15}{64}$	$2\frac{1}{16}$	$\frac{3}{32}$	.02
H-10	$\frac{3}{16}$ & $\frac{7}{32}$	$2\frac{1}{16}$	$\frac{3}{32}$	.02
H-12	$\frac{1}{4}$ & $\frac{9}{32}$	$3\frac{1}{16}$	$\frac{7}{64}$	.02
H-14	$\frac{5}{16}$ & $\frac{11}{32}$	$3\frac{13}{16}$	$\frac{1}{8}$	.03
H-15	$\frac{5}{32}$ & $\frac{3}{8}$	$3\frac{13}{16}$	$\frac{1}{8}$	.03
H-16	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{3}{16}$	$\frac{5}{32}$	.03
H-18	$\frac{13}{32}$ & $\frac{15}{32}$	$4\frac{3}{16}$	$\frac{5}{32}$	.03
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.....				
.....				
.....				



This set contains one each of Nos. H-10, H-12, H-14, H-16 and H-18 miniature wrenches (see left).

Five wrenches with openings from $\frac{3}{16}$ to $\frac{15}{32}$ ".

No duplications.

In roll or cardboard box.

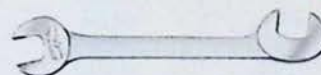
Set No. H-5C, in Cardboard

Box; Approx. Weight, .5 Lb.

Set No. H-5R, in Roll No. R-5;

Approximate Weight, .5 Lb.

Miniature Angle Wrench Sets



15° and 75° Angle Openings

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Approx. Thickness Heads Inches	Approx. Weight Lb.
1112	$\frac{3}{16}$ & $\frac{3}{16}$	3	$\frac{3}{32}$	.01
1113	$\frac{13}{64}$ & $\frac{13}{64}$	3	$\frac{3}{32}$	.01
1114	$\frac{7}{32}$ & $\frac{7}{32}$	3	$\frac{3}{32}$	.01
1115	$\frac{15}{64}$ & $\frac{15}{64}$	3	$\frac{3}{32}$	.01
1116	$\frac{1}{4}$ & $\frac{1}{4}$	3	$\frac{3}{32}$	.01
1118	$\frac{5}{32}$ & $\frac{5}{32}$	$3\frac{3}{4}$	$\frac{1}{8}$	.03
1120	$\frac{5}{16}$ & $\frac{5}{16}$	$3\frac{3}{4}$	$\frac{1}{8}$	.03
1122	$\frac{11}{32}$ & $\frac{11}{32}$	$3\frac{3}{4}$	$\frac{1}{8}$	.04
1124	$\frac{3}{8}$ & $\frac{3}{8}$	$3\frac{3}{4}$	$\frac{1}{8}$	.04
1128	$\frac{7}{16}$ & $\frac{7}{16}$	$4\frac{1}{2}$	$\frac{5}{32}$	.07
1132	$\frac{1}{2}$ & $\frac{1}{2}$	$4\frac{1}{2}$	$\frac{5}{32}$	.07
1136	$\frac{5}{16}$ & $\frac{5}{16}$	$5\frac{1}{2}$	$\frac{3}{16}$	.11
1140	$\frac{3}{8}$ & $\frac{3}{8}$	$5\frac{1}{2}$	$\frac{3}{16}$	.11

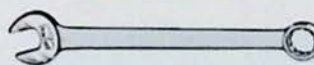


Set No. 1140P. Includes 10 miniature wrenches: Nos. 1112, 1113, 1114, 1115, 1116, 1118, 1120, 1122, 1124, 1128 (see left) and 1 pair of No. 1519-A electrical pliers. In Roll No. R-7; Approximate Weight, .5 Lb.

Set No. 1142P. Includes the ten miniature wrenches of Set No. 1140-P plus Nos. 1132, 1136 and 1140; and No. 1519-A Pliers in Roll No. R-9; Approx. Wt. .75 Lb.

Miniature Combination Wrench Set No. 1186R

Combination Pattern



Combination Box and Open End

No.	Nominal Openings Inches	Approx. Extreme Lgth., In.	Approx. Weight Lb.
*1157	$\frac{7}{32}$ & $\frac{7}{32}$	3	.03
*1158	$\frac{1}{4}$ & $\frac{1}{4}$	3	.03
*1158-A	$\frac{5}{32}$ & $\frac{5}{32}$	$3\frac{1}{2}$	.05
*1159	$\frac{5}{16}$ & $\frac{5}{16}$	$3\frac{1}{2}$	.05
1159-A	$\frac{11}{32}$ & $\frac{11}{32}$	$4\frac{1}{4}$	.08
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$	.08
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.....			
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Set No. 1186R contains six miniature combination wrenches Nos. 1157, 1158, 1158A, 1159, 1159A, 1160.

This set ideal for electrical and ignition work. Nominal openings included are $\frac{1}{32}$, $\frac{1}{4}$, $\frac{5}{32}$, $\frac{1}{2}$, $\frac{11}{32}$ and $\frac{3}{8}$ ".

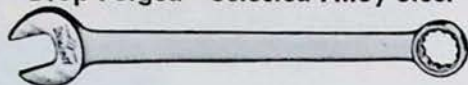
Set No. 1186R, in Roll No. R-11; Approximate Weight, .5 Lb.

Set No. 1186C, in Cardboard Box; Approximate Weight, .5 Lb.

*These sizes have single hex, 6-point opening in box end.



ARMSTRONG ARMALLOY WRENCHES COMBINATION OPEN END AND BOX PATTERN Drop Forged—Selected Alloy Steel

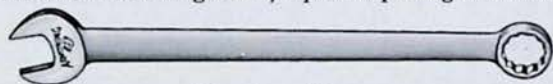


Standard Pattern

Accurately milled and broached. Smoothly burnished. Carefully heat treated. Finished in chrome plate with heads buffed bright. Stamped with catalog number and nominal opening. Both ends have same size opening; opening in open end is offset 15°, head of box socket end is offset 15°. Each end rotates hex nuts when swing arc is only 30°. In stock with openings listed. Wrenches with special openings available on special order.

Number	Nominal Openings Inches (Both ends)	Length	Weight Lbs.
*1157	$\frac{3}{32}$	3	.03
*1158	$\frac{1}{4}$	3	.03
*1158-A	$\frac{3}{32}$	$3\frac{1}{2}$	.05
*1159	$\frac{5}{16}$	$3\frac{1}{2}$	.05
1159-A	$\frac{11}{32}$	$4\frac{1}{4}$	.08
1160	$\frac{3}{8}$	$4\frac{1}{4}$	.08
1161	$\frac{7}{16}$	5	.09
1162	$\frac{1}{2}$	$5\frac{1}{4}$	.13
1163	$\frac{9}{16}$	$5\frac{7}{8}$	.21
1163-A	$\frac{19}{32}$	$5\frac{7}{8}$	.21
1164	$\frac{5}{8}$	$6\frac{1}{4}$	.28
1165	$\frac{11}{16}$	$7\frac{1}{8}$	.28
1166	$\frac{3}{4}$	8	.50
1166-A	$\frac{25}{32}$	8	.50
1167-A	$\frac{13}{16}$	$10\frac{1}{2}$	.75
1167	$\frac{7}{8}$	$10\frac{1}{2}$	.75

*These sizes have single hex, 6-point opening in box end.



Extra Long Pattern

Extra Long combination wrenches for use where additional leverage is required to loosen tight nuts.

Number	Nominal Openings Inches (Both ends)	Length	Weight Lbs.
1160L	$\frac{3}{8}$	$7\frac{1}{8}$	.09
1161L	$\frac{7}{16}$	$7\frac{7}{8}$	.14
1162L	$\frac{1}{2}$	$8\frac{5}{8}$	.16
1163L	$\frac{9}{16}$	$9\frac{5}{8}$	.21
1164L	$\frac{5}{8}$	$10\frac{3}{8}$	.30
1165L	$\frac{11}{16}$	$11\frac{1}{8}$	.37
1166L	$\frac{3}{4}$	$11\frac{1}{8}$	.46
1167-AL	$\frac{13}{16}$	$12\frac{1}{8}$	.56
1167L	$\frac{7}{8}$	$12\frac{1}{8}$	.75
1168L	$\frac{15}{16}$	$13\frac{1}{8}$	1.13
1170L	1	$14\frac{1}{8}$	1.13
1171L	$\frac{11}{16}$	15	1.75
1172L	$\frac{13}{16}$	15	1.75
1173L	$\frac{1}{4}$	$18\frac{1}{8}$	2.56
1174L	$\frac{13}{16}$	$18\frac{1}{8}$	2.56
1175L	$\frac{13}{8}$	20	3.25
1176L	$\frac{17}{16}$	$21\frac{1}{8}$	3.88
1178L	$\frac{1}{2}$	$21\frac{1}{8}$	3.88
1180L	$\frac{15}{8}$	$24\frac{1}{8}$	5.70
1182L	$\frac{11}{16}$	$24\frac{1}{8}$	5.70
1184L	$\frac{13}{4}$	$27\frac{1}{8}$	6.80
1186L	$\frac{113}{16}$	$27\frac{1}{8}$	6.80
1188L	$\frac{17}{8}$	$27\frac{1}{8}$	7.20
1190L	2	$27\frac{1}{8}$	7.20

COMBINATION WRENCH SETS

Box and Open End Pattern
Drop Forged—Selected Alloy Steel

Set No. 1104R Standard Pattern

Set No. 1104R in Plastic Roll No. R-17. Approx. wt., .75 lb.
Four wrenches with openings $\frac{3}{16}$ " to $\frac{5}{8}$ ".



Contents

No.	Nominal Openings, In.	Lgth. In.
1161	$\frac{3}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$

Set No. 1106R—Standard Pattern

Set No. 1106LR—Extra Long Pattern

Set No. 1106R in Plastic Roll No. R-3; Set No. 1106C in Cardboard Box. Approx. wt., 1 lb. Set No. 1106LR in Plastic Roll No. R-3; Set No. 1106LC in Cardboard Box. Approx. wt., 2 lbs.

Six Std. length or extra long wrenches with openings $\frac{3}{8}$ " to $\frac{3}{4}$ ".



Contents

Std. No.	Ex. long No.	Nominal Openings, In.	Std. Lgth., In.	Ex. long Lgth., In.
1160	1160L	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$	$7\frac{1}{8}$
1161	1161L	$\frac{7}{16}$ & $\frac{7}{16}$	5	$7\frac{7}{8}$
1162	1162L	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$	$8\frac{5}{8}$
1163	1163L	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$	$9\frac{5}{8}$
1164	1164L	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$	$10\frac{3}{8}$
1166	1166L	$\frac{3}{4}$ & $\frac{3}{4}$	8	$11\frac{1}{8}$

Set No. 1108R Standard Pattern

Eight wrenches with openings $\frac{3}{8}$ " to $\frac{7}{8}$ ". Set No. 1108R in Plastic Roll No. R-21

Set No. 1108C, in Cardboard box. Approx. weight 2.17 lbs.



Contents

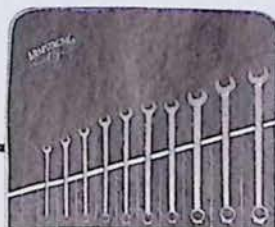
No.	Nominal Openings, In.	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1165	$\frac{11}{16}$ & $\frac{11}{16}$	$7\frac{1}{8}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$

Set No. 1110LR Extra Long Pattern

Ten wrenches with openings $\frac{3}{8}$ " to 1".

Set No. 1110LR in Plastic Roll No. R-23.

Set No. 1110LC in Cardboard Box. Approx. weight, 4.50 lbs.



Contents

No.	Nominal Openings, In.	Lgth. In.	No.	Nominal Openings, In.	Lgth. In.
1160-L	$\frac{3}{8}$ & $\frac{3}{8}$	$7\frac{1}{8}$	1165-L	$\frac{11}{16}$ & $\frac{11}{16}$	$11\frac{1}{8}$
1161-L	$\frac{7}{16}$ & $\frac{7}{16}$	$7\frac{7}{8}$	1166-L	$\frac{3}{4}$ & $\frac{3}{4}$	$11\frac{1}{8}$
1162-L	$\frac{1}{2}$ & $\frac{1}{2}$	$8\frac{5}{8}$	1167-L	$\frac{7}{8}$ & $\frac{7}{8}$	$12\frac{1}{8}$
1163-L	$\frac{9}{16}$ & $\frac{9}{16}$	$9\frac{5}{8}$	1168-L	$\frac{15}{16}$ & $\frac{15}{16}$	$13\frac{1}{8}$
1164-L	$\frac{5}{8}$ & $\frac{5}{8}$	$10\frac{3}{8}$	1170-L	1 & 1	$14\frac{1}{8}$

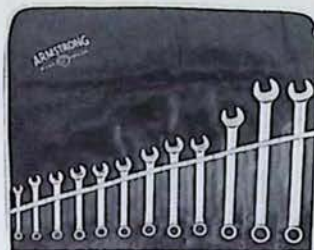
See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY WRENCHES COMBINATION WRENCH SETS—Continued

Extra Long Pattern

Box and Open End Pattern • Drop Forged—Selected Alloy Steel



Set No. 1112R Standard Pattern

Twelve wrenches with openings $\frac{3}{8}$ " to 1".

Set No. 1112R, in Plastic Roll No. R-23.

Set No. 1112C, in Card-board Box. Approx. weight, 5.5 lb.

Contents

No.	Nominal Openings, In.	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	4 $\frac{1}{4}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	5 $\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	5 $\frac{7}{8}$
1163-A	$\frac{19}{32}$ & $\frac{19}{32}$	5 $\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	6 $\frac{1}{4}$

No.	Nominal Openings, In.	Lgth. In.
1165	$\frac{11}{16}$ & $\frac{11}{16}$	7 $\frac{1}{8}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1166-A	$\frac{25}{32}$ & $\frac{25}{32}$	8
1167	$\frac{7}{8}$ & $\frac{7}{8}$	10 $\frac{1}{2}$
1168-L	$\frac{15}{16}$ & $\frac{15}{16}$	13 $\frac{1}{8}$
1170-L	1 & 1	14 $\frac{1}{8}$



Set No. 1115R Standard Pattern

15 wrenches with openings $\frac{5}{16}$ " to 1 $\frac{1}{4}$ ".

Set No. 1115R in convenient 15-pocket Plastic Roll, No. R-20.

Set No. 1115C in Card-board Box. Approx. weight, 9.5 lbs.

Contents

No.	Nominal Openings, In. (Both Ends)	Length In.
1159	$\frac{5}{16}$	3 $\frac{1}{2}$
1160	$\frac{3}{8}$	4 $\frac{1}{4}$
1161	$\frac{7}{16}$	5
1162	$\frac{1}{2}$	5 $\frac{1}{4}$
1163	$\frac{9}{16}$	5 $\frac{7}{8}$
1164	$\frac{5}{8}$	6 $\frac{1}{4}$
1165	$\frac{11}{16}$	7 $\frac{1}{8}$

No.	Nominal Openings, In. (Both Ends)	Length In.
1166	$\frac{3}{4}$	8
1167-A	$\frac{13}{16}$	10 $\frac{1}{2}$
1167	$\frac{7}{8}$	10 $\frac{1}{2}$
1168L	$\frac{15}{16}$	13 $\frac{1}{8}$
1170L	1	14 $\frac{1}{8}$
1171L	$\frac{11}{16}$	15
1172L	$\frac{13}{16}$	15
1173L	$\frac{11}{4}$	18 $\frac{1}{8}$



Set No. 1118R Standard Pattern

18 wrenches with openings $\frac{5}{16}$ " to 1 $\frac{1}{4}$ ".

Set No. 1118R in convenient 18-pocket Plastic Roll, No. R-19.

Set No. 1118C in Card-board Box. Approx. weight, 12.5 lbs.

Contents

No.	Nominal Openings, In. (Both Ends)	Length In.
1159	$\frac{5}{16}$	3 $\frac{1}{2}$
1159-A	$\frac{11}{32}$	4 $\frac{1}{4}$
1160	$\frac{3}{8}$	4 $\frac{1}{4}$
1161	$\frac{7}{16}$	5
1162	$\frac{1}{2}$	5 $\frac{1}{4}$
1163	$\frac{9}{16}$	5 $\frac{7}{8}$
1163-A	$\frac{19}{32}$	5 $\frac{7}{8}$
1164	$\frac{5}{8}$	6 $\frac{1}{4}$
1165	$\frac{11}{16}$	7 $\frac{1}{8}$

No.	Nominal Openings, In. (Both Ends)	Length In.
1166	$\frac{3}{4}$	8
1166-A	$\frac{25}{32}$	8
1167-AL	$\frac{13}{16}$	12 $\frac{1}{8}$
1167L	$\frac{7}{8}$	12 $\frac{1}{8}$
1168L	$\frac{15}{16}$	13 $\frac{1}{8}$
1170L	1	14 $\frac{1}{8}$
1171L	$\frac{11}{16}$	15
1172L	$\frac{13}{16}$	15
1173L	$\frac{11}{4}$	18 $\frac{1}{8}$

ARMSTRONG GRAY ENAMEL FINISH ARMALLOY WRENCHES

COMBINATION

OPEN END AND BOX PATTERN

Drop Forged—Selected Alloy Steel



Extra Long Pattern

Cat. No.	Nominal Openings Inches (Both ends)	Approx. Extreme Length, In.	Approx. Weight Lbs.
G60L	$\frac{3}{8}$	7 $\frac{1}{8}$	.09
G61L	$\frac{7}{16}$	7 $\frac{7}{8}$	.14
G62L	$\frac{1}{2}$	8 $\frac{5}{8}$	.16
G63L	$\frac{9}{16}$	9 $\frac{5}{8}$	.21
G64L	$\frac{5}{8}$	10 $\frac{3}{8}$	.30
G65L	$\frac{11}{16}$	11 $\frac{1}{8}$	.37
G66L	$\frac{3}{4}$	11 $\frac{1}{8}$	.46
G67-AL	$\frac{13}{16}$	12 $\frac{1}{8}$	.56
G67L	$\frac{7}{8}$	12 $\frac{1}{8}$	.75
G68L	$\frac{15}{16}$	13 $\frac{1}{8}$	1.13
G70L	1	14 $\frac{1}{8}$	1.13
G71L	$\frac{11}{16}$	15	1.75
G72L	$\frac{13}{16}$	15	1.75
G73L	$\frac{11}{4}$	18 $\frac{1}{8}$	2.56

Set No. G6LR

Set No. G6LR in Plastic Roll No. R-3. Set No. G6LC in Cardboard Box. Approx. wt., 2 lbs.

Six wrenches with openings $\frac{3}{8}$ " to $\frac{3}{4}$ ".

Contents

No.	Nominal Openings, In.	Lgth. In.
G60L	$\frac{3}{8}$ & $\frac{3}{8}$	7 $\frac{1}{8}$
G61L	$\frac{7}{16}$ & $\frac{7}{16}$	7 $\frac{7}{8}$
G62L	$\frac{1}{2}$ & $\frac{1}{2}$	8 $\frac{5}{8}$
G63L	$\frac{9}{16}$ & $\frac{9}{16}$	9 $\frac{5}{8}$
G64L	$\frac{5}{8}$ & $\frac{5}{8}$	10 $\frac{3}{8}$
G66L	$\frac{3}{4}$ & $\frac{3}{4}$	11 $\frac{1}{8}$

Gray enamel finish



Set No. G10LR

Ten wrenches with openings $\frac{3}{8}$ " to 1".

Set No. G10LR in Plastic Roll No. R-23.

Set No. G10LC in Card-board Box. Approx. weight, 4.50 lbs.

Contents

No.	Nominal Openings, In.	Lgth. In.
G60-L	$\frac{3}{8}$ & $\frac{3}{8}$	7 $\frac{1}{8}$
G61-L	$\frac{7}{16}$ & $\frac{7}{16}$	7 $\frac{7}{8}$
G62-L	$\frac{1}{2}$ & $\frac{1}{2}$	8 $\frac{5}{8}$
G63-L	$\frac{9}{16}$ & $\frac{9}{16}$	9 $\frac{5}{8}$
G64-L	$\frac{5}{8}$ & $\frac{5}{8}$	10 $\frac{3}{8}$

No.	Nominal Openings, In.	Lgth. In.
G65-L	$\frac{11}{16}$ & $\frac{11}{16}$	11 $\frac{1}{8}$
G66-L	$\frac{3}{4}$ & $\frac{3}{4}$	11 $\frac{1}{8}$
G67-L	$\frac{7}{8}$ & $\frac{7}{8}$	12 $\frac{1}{8}$
G68-L	$\frac{15}{16}$ & $\frac{15}{16}$	13 $\frac{1}{8}$
G70-L	1 & 1	14 $\frac{1}{8}$

Gray enamel finish





ARMSTRONG ARMALLOY WRENCHES

BOX SOCKET PATTERN

Drop Forged—Selected Alloy Steel—Chrome Plated

Accurately broached. Smoothly burnished. Carefully heat treated. Finished in chrome plate. Heads buffed bright. Plainly stamped with catalog number and nominal opening.

Thin head walls permit use where clearance is limited.

Double hexagon (12-point) openings permit nut to be rotated where swing is limited to a 30° arc.

All openings are slightly larger than nominal sizes to allow for proper clearance.

15° Angle Offset—Short Pattern



No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approximate Weight Lb.
6723	$\frac{3}{8}$ & $\frac{1}{16}$	4½	.08
6725	$\frac{1}{16}$ & $\frac{1}{2}$	5½	.11
6725-A	$\frac{1}{16}$ & $\frac{9}{16}$	5½	.14
6725-B	$\frac{1}{2}$ & $\frac{9}{16}$	5½	.14
6025	$\frac{1}{2}$ & $\frac{19}{32}$	5½	.14
6727	$\frac{9}{16}$ & $\frac{5}{8}$	6	.18

15° Angle Offset—Long Pattern

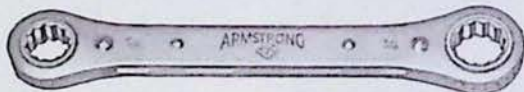


The 15° angle offset design provides greater clearance at handle end yet retains steady grip of straight wrench.

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
7723	$\frac{3}{8}$ & $\frac{1}{16}$	7¾	.19
7725	$\frac{1}{16}$ & $\frac{1}{2}$	7¾	.25
7725-A	$\frac{1}{16}$ & $\frac{9}{16}$	8¼	.25
7725-B	$\frac{1}{2}$ & $\frac{9}{16}$	8¼	.25
7025	$\frac{1}{2}$ & $\frac{19}{32}$	8¼	.38
7727	$\frac{9}{16}$ & $\frac{5}{8}$	9¼	.38
7027	$\frac{19}{32}$ & $\frac{11}{16}$	10½	.51
7727-A	$\frac{5}{8}$ & $\frac{11}{16}$	10½	.50
7729	$\frac{5}{8}$ & $\frac{3}{4}$	10½	.50
7029-B	$\frac{11}{16}$ & $\frac{3}{4}$	11	.51
7029	$\frac{11}{16}$ & $\frac{25}{32}$	11	.51
7729-A	$\frac{3}{4}$ & $\frac{25}{32}$	12	.56
7030	$\frac{11}{16}$ & $\frac{7}{8}$	12	.56
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12	.56
7031-B	$\frac{25}{32}$ & $\frac{13}{16}$	12¾	.66
7731-B	$\frac{13}{16}$ & $\frac{7}{8}$	12¾	.88
7033-A	$\frac{7}{8}$ & $\frac{15}{16}$	13¾	.95
7733	$\frac{7}{8}$ & 1	13¾	.95
7033-C	$\frac{15}{16}$ & 1	13¾	.95
7034	$\frac{7}{8}$ & $\frac{11}{16}$	15½	1.30
7034-A	$\frac{15}{16}$ & $\frac{11}{16}$	15½	1.30
7735	1 & $\frac{11}{16}$	16⅝	2.00
7735-A	$\frac{11}{16}$ & $\frac{11}{8}$	16⅝	2.00
7037	$\frac{11}{16}$ & $\frac{11}{4}$	17¼	1.80
7037-A	$\frac{11}{8}$ & $\frac{15}{16}$	17¼	1.80
7039-B	$\frac{11}{4}$ & $\frac{15}{16}$	19	2.40
7039	$\frac{11}{4}$ & $\frac{17}{16}$	19	2.40
7039-A	$\frac{15}{16}$ & $\frac{11}{2}$	19	2.40
7040-B	$\frac{17}{16}$ & $\frac{11}{2}$	21	5.61
7041	$\frac{17}{16}$ & $\frac{15}{8}$	21	5.59
7742-B	$\frac{11}{2}$ & $\frac{11}{16}$	21	5.59

ARMSTRONG RATCHETING BOX WRENCHES

ARMSTRONG Ratcheting Box Wrenches permit quick easy turning of hard-to-get-at nuts. Made from selected steel and chrome plated, they are accurately broached to assure a clean fit. Ratcheting action is reversed by merely inverting the wrench. All critical parts are heat treated for safety and long wear.

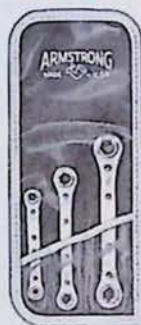


No.	Nominal Openings	Overall Length Inches	Weight Each Lb.
RB-810	$\frac{1}{4}$ & $\frac{5}{16}$ 6 Pt.	4¼	.13
RB-1214	$\frac{3}{8}$ & $\frac{1}{2}$ 6 Pt.	5½	.19
RB-1618	$\frac{1}{2}$ & $\frac{9}{16}$ 6 Pt.	6¾	.42
RB-2022	$\frac{5}{8}$ & $\frac{11}{16}$ 12 Pt.	8	.67
RB-2024	$\frac{5}{8}$ & $\frac{3}{4}$ 12 Pt.	8	.67
RB-2428	$\frac{3}{4}$ & $\frac{7}{8}$ 12 Pt.	9¼	.75

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

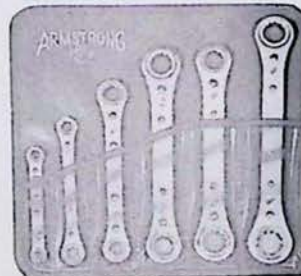
Set No. RB-3R

Contents: Three ratcheting box wrenches as follows in plastic roll No. R-25; Nos. RB-810, RB-1214, RB-1618. Approximate weight, .75 lb.



Set No. RB-6R

Contents: Six ratcheting box wrenches as follows in plastic roll No. R-3; Nos. RB-810, RB-1214, RB-1618, RB-2022, RB-2024 and RB-2428. Approximate weight, 2.90 lbs.



ARMSTRONG ARMALLOY WRENCHES

BOX SOCKET PATTERN

Accurately broached. Smoothly burnished. Carefully heat treated. Finished in chrome plate. Heads buffed bright. Plainly stamped with catalog number and nominal opening. Thin head walls permit use where clearance is limited.

Double hexagon (12-point) openings permit nut to be rotated where swing is limited to a 30° arc. (Miniature pattern wrenches have six point openings.) All openings are slightly larger than nominal sizes to allow for proper clearance.

45° Angle—Miniature Pattern



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lbs.
1150	$\frac{3}{16}$ & $\frac{13}{64}$	$2\frac{7}{8}$	.02
1151	$\frac{7}{32}$ & $\frac{15}{64}$	$3\frac{1}{8}$	.03
1152	$\frac{1}{4}$ & $\frac{3}{32}$	$3\frac{3}{8}$	.04
1153	$\frac{5}{16}$ & $\frac{1}{2}$	$3\frac{3}{4}$	.06

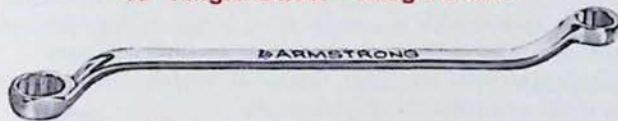
For other miniature wrenches, see page 47.

45° Angle Offset—Short Pattern



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approximate Weight Lb.
9723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{1}{2}$	.10
9725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$	.19
9725-A	$\frac{7}{16}$ & $\frac{9}{16}$	$5\frac{1}{2}$	.22
9725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$5\frac{1}{2}$	.22
9025	$\frac{1}{2}$ & $\frac{19}{32}$	$5\frac{1}{2}$	.22
9727	$\frac{9}{16}$ & $\frac{5}{8}$	6	.29
9728-A	$\frac{5}{8}$ & $\frac{11}{16}$	6	.29
9729-A	$\frac{11}{16}$ & $\frac{3}{4}$	$6\frac{3}{4}$	.38

45° Angle Offset—Long Pattern



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.
8721	$\frac{5}{16}$ & $\frac{3}{8}$	$7\frac{3}{4}$	.19
8723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{4}$	.26
8023	$\frac{13}{32}$ & $\frac{1}{2}$	$8\frac{1}{4}$	.31
8725	$\frac{7}{16}$ & $\frac{1}{2}$	$8\frac{1}{4}$	.37
8725-A	$\frac{7}{16}$ & $\frac{9}{16}$	$8\frac{3}{4}$	.43
8725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$8\frac{3}{4}$	.43
8025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{3}{4}$	.43
8727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{3}{4}$	.59
8027	$\frac{19}{32}$ & $\frac{11}{16}$	$10\frac{3}{8}$	.84

Continued in next column.

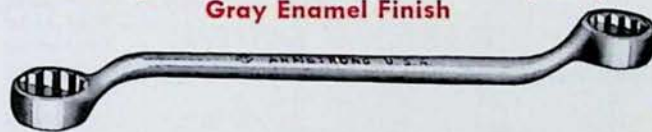
See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

45° Angle Offset—Long Pattern

Continued from previous column.

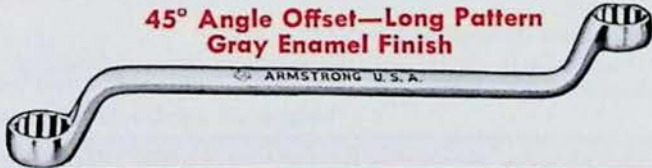
No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.
8727-A	$\frac{5}{8}$ & $\frac{11}{16}$	$10\frac{3}{8}$	.80
8729	$\frac{5}{8}$ & $\frac{3}{4}$	11	.80
8029-B	$\frac{11}{16}$ & $\frac{3}{4}$	11	.84
8029	$\frac{11}{16}$ & $\frac{25}{32}$	11	.84
8729-A	$\frac{3}{4}$ & $\frac{25}{32}$	$12\frac{1}{2}$	1.00
8030	$\frac{11}{16}$ & $\frac{7}{8}$	$12\frac{3}{4}$	1.00
8731	$\frac{3}{4}$ & $\frac{13}{16}$	$12\frac{1}{2}$	1.00
8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$12\frac{3}{4}$	1.00
8031-B	$\frac{25}{32}$ & $\frac{13}{16}$	$12\frac{1}{2}$	1.00
8031	$\frac{25}{32}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
8731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
8033-A	$\frac{7}{8}$ & $\frac{15}{16}$	$14\frac{1}{2}$	1.14
8733	$\frac{7}{8}$ & 1	14	1.14
8033-C	$\frac{15}{16}$ & 1	$14\frac{1}{2}$	1.14
8034	$\frac{7}{8}$ & $\frac{11}{16}$	$15\frac{1}{2}$	1.30
8034-A	$\frac{15}{16}$ & $\frac{11}{16}$	$15\frac{1}{2}$	1.30
8735	1 & $\frac{11}{16}$	16	2.30
8735-A	$\frac{11}{16}$ & $\frac{11}{8}$	17	2.30
8037	$\frac{11}{16}$ & $\frac{11}{4}$	17	2.10
8037-A	$\frac{11}{8}$ & $\frac{15}{16}$	17	3.30
8039-B	$\frac{11}{4}$ & $\frac{15}{16}$	19	3.30
8039	$\frac{11}{4}$ & $\frac{15}{16}$	19	3.30
8039-A	$\frac{15}{16}$ & $\frac{11}{2}$	19	3.30

45° Angle Offset—Long Pattern, Heavy Duty Gray Enamel Finish



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.
8040-B	$\frac{13}{16}$ & $\frac{11}{2}$	21	6.26
8041	$\frac{13}{16}$ & $\frac{15}{8}$	23	5.70
8742-B	$\frac{11}{2}$ & $\frac{11}{16}$	23	5.79
8045	$\frac{11}{16}$ & 2	25	8.49
8049	$\frac{23}{16}$ & $\frac{23}{8}$	27	10.23
8053	$\frac{23}{16}$ & $\frac{23}{4}$	30	14.69

45° Angle Offset—Long Pattern Gray Enamel Finish



Cat. No.	Nominal Openings Inches	Approx. Extreme Length, In.	Approx. Weight Lbs.
G8723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{4}$	.26
G8725	$\frac{7}{16}$ & $\frac{1}{2}$	$8\frac{1}{4}$	.37
G8725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$8\frac{3}{4}$	.43
G8727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{3}{4}$	.59
G8729	$\frac{5}{8}$ & $\frac{3}{4}$	11	.80
G8029-B	$\frac{11}{16}$ & $\frac{3}{4}$	11	.84
G8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$12\frac{3}{4}$	1.00
G8731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
G8033-C	$\frac{15}{16}$ & 1	$14\frac{1}{2}$	1.14
G8735-A	$\frac{11}{16}$ & $\frac{11}{8}$	17	2.30
G8037	$\frac{11}{16}$ & $\frac{11}{4}$	17	2.10



ARMSTRONG ARMALLOY BOX SOCKET WRENCH SETS

15° Angle, Offset Pattern and 45° Angle, Double Offset Pattern
Drop Forged—Selected Alloy Steel—Chrome Plated

Set No. 1154-R

45° Angle, Offset—
Miniature Pattern



Four wrenches with 6-point openings $\frac{3}{16}$ to $1\frac{1}{2}$ inches.

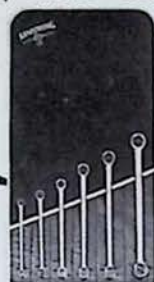
No duplications.

Set No. 1154-R, in Plastic Roll No. R-27. Approx. weight, .19 lb.

No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lbs.
1150	$\frac{3}{16}$ & $\frac{13}{64}$	$2\frac{1}{8}$	.02
1151	$\frac{7}{32}$ & $\frac{15}{64}$	$3\frac{1}{8}$	.03
1152	$\frac{1}{4}$ & $\frac{9}{32}$	$3\frac{3}{8}$	.04
1153	$\frac{5}{16}$ & $1\frac{1}{32}$	$3\frac{3}{4}$	.06

Set No. 7006-R

15° Angle, Offset—Long Pattern



Six wrenches with openings $\frac{3}{8}$ to 1". No duplications.

Furnished in plastic roll No. R-6. Approximate weight, 2.75 lb.

Set No. 7006-C, in Cardboard box. Approx. weight 2.75 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
7723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{8}$
7025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{1}{4}$
7727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{1}{4}$
7029	$\frac{11}{16}$ & $\frac{25}{32}$	11
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12
7033-C	$\frac{15}{16}$ & 1	$13\frac{3}{4}$

Set No. 8006-R

45° Angle, Double Offset—
Long Pattern



Six wrenches with openings $\frac{3}{8}$ to 1". No duplications.

Furnished in plastic roll No. R-6. Approximate weight, 4.25 lb.

Set No. 8006-C, in Cardboard box. Approx. weight 4.25 lb.

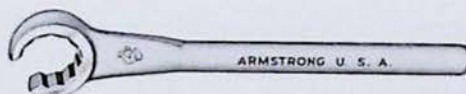
Wrenches included are:

No.	Openings, Inches	Length, Inches
8723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{4}$
8025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{3}{4}$
8727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{3}{4}$
8029	$\frac{11}{16}$ & $\frac{25}{32}$	11
8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$12\frac{1}{2}$
8033-C	$\frac{15}{16}$ & 1	$14\frac{1}{2}$

ARMSTRONG ARMALLOY WRENCHES

FLARE NUT PATTERN

Drop Forged—Selected Alloy Steel—Chrome Plated



Accurately broached. Carefully heat treated. Finished in chrome plate. Wrench heads buffed bright.

Wrenches plainly stamped with catalog number and nominal opening.

Especially designed for use over tubing and pipe in close quarters.

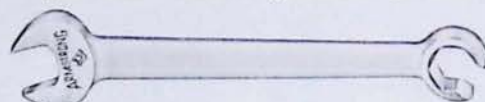
Will not damage soft brass flare nuts.

Particularly useful for refrigeration, air conditioning, aircraft service work.

No.	Nominal Opening Inches	HEAD		Slot Opening, In.	Approx. Overall Length Inches	Approx. Weight Lbs.
		Diameter Inches	Depth Inches			
4112	$\frac{3}{8}$	$2\frac{1}{32}$	$\frac{5}{16}$	$1\frac{1}{64}$	$6\frac{3}{8}$	.08
4114	$\frac{7}{16}$	$2\frac{1}{16}$	$\frac{11}{32}$	$2\frac{1}{64}$	$6\frac{7}{16}$	.13
4116	$\frac{1}{2}$	$2\frac{1}{8}$	$\frac{1}{4}$	$2\frac{1}{64}$	$6\frac{3}{4}$	.13
4118	$\frac{9}{16}$	$2\frac{1}{4}$	$\frac{1}{4}$	$2\frac{1}{64}$	$6\frac{3}{4}$	.25
4120	$\frac{5}{8}$	$2\frac{1}{2}$	$\frac{15}{32}$	$3\frac{1}{64}$	$7\frac{1}{16}$	.33
4122	$1\frac{1}{16}$	$2\frac{1}{2}$	$\frac{1}{2}$	$3\frac{1}{64}$	$7\frac{1}{8}$	.33
4124	$\frac{3}{4}$	$2\frac{1}{2}$	$\frac{9}{16}$	$4\frac{1}{64}$	$7\frac{3}{8}$	.50
4126	$1\frac{1}{8}$	$2\frac{1}{2}$	$\frac{5}{8}$	$4\frac{1}{64}$	$7\frac{1}{2}$	.67
4128	$\frac{7}{8}$	$2\frac{1}{2}$	$\frac{5}{8}$	$4\frac{1}{64}$	$7\frac{3}{4}$	.67
4130	$1\frac{1}{4}$	$2\frac{1}{2}$	$\frac{5}{8}$	$4\frac{1}{64}$	$7\frac{3}{4}$	1.00
4132	1	$2\frac{1}{2}$	$\frac{11}{16}$	$4\frac{1}{64}$	$7\frac{1}{2}$	1.00
4134	$1\frac{1}{8}$	$2\frac{1}{2}$	$\frac{3}{4}$	$5\frac{1}{64}$	$7\frac{3}{8}$	1.25
4136	$1\frac{1}{4}$	$2\frac{1}{2}$	$\frac{25}{32}$	$5\frac{1}{64}$	$7\frac{3}{8}$	1.25
4138	$1\frac{3}{8}$	$2\frac{1}{2}$	$\frac{15}{16}$	$6\frac{1}{64}$	$7\frac{29}{32}$	1.25

COMBINATION OPEN END AND FLARE NUT PATTERN

Drop Forged—Selected Alloy Steel—Chrome Plated



Accurately milled and broached. Smoothly burnished. Carefully heat treated.

Finished in chrome plate with heads buffed bright.

Wrenches plainly stamped with catalog number and nominal opening.

Both ends have same size opening.

Opening in open end is offset 15°. Head of 6-point open box end is offset 15° with the slot at $22\frac{1}{2}$ ° to the axis of handle.

Each end rotates hex nuts when swing is only 30°, especially useful over tubing and pipe in close quarters.

In stock with openings listed. Wrenches with special openings available on special order.

No.	Nominal Openings Inches	Width Open Head Inches	Outside Diameter Box Head Inches	Hex Head Slot, In.	Approx. Extreme Length Inches	Approx. Weight Lbs.
1312	$\frac{3}{8}$ & $\frac{3}{8}$	$2\frac{1}{32}$	$2\frac{1}{32}$	$\frac{1}{4}$	5	.09
1314	$\frac{7}{16}$ & $\frac{7}{16}$	$1\frac{1}{32}$	$2\frac{1}{32}$	$\frac{9}{32}$	$5\frac{1}{4}$	.13
1316	$\frac{1}{2}$ & $\frac{1}{2}$	$1\frac{1}{32}$	$2\frac{1}{32}$	$\frac{3}{8}$	$5\frac{1}{8}$	.21
1318	$\frac{9}{16}$ & $\frac{9}{16}$	$1\frac{1}{32}$	$2\frac{1}{32}$	$\frac{1}{2}$	$6\frac{1}{4}$	.28
1320	$\frac{5}{8}$ & $\frac{5}{8}$	$1\frac{1}{32}$	$2\frac{1}{32}$	$\frac{15}{32}$	7	.35
1322	$1\frac{1}{16}$ & $1\frac{1}{16}$	$1\frac{1}{32}$	$2\frac{1}{32}$	$\frac{9}{16}$	8	.50
1324	$\frac{3}{4}$ & $\frac{3}{4}$	$1\frac{1}{32}$	$2\frac{1}{32}$	$\frac{11}{16}$	$10\frac{1}{2}$	.75
1328	$\frac{7}{8}$ & $\frac{7}{8}$	2	$1\frac{1}{2}$	$\frac{1}{2}$	13	1.13
1332	1 & 1	$2\frac{1}{16}$	$1\frac{1}{2}$	$\frac{3}{4}$	15	1.75
1334	$1\frac{1}{8}$ & $1\frac{1}{8}$	$2\frac{1}{8}$	$1\frac{1}{2}$	$\frac{27}{32}$	18	2.56
1336	$1\frac{1}{4}$ & $1\frac{1}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{27}{32}$	18	2.56



ARMSTRONG WRENCHES

ARMALLOY STRIKING FACE BOX

45° Angle, Offset Pattern
Double Hexagon (12-Point) Opening
Drop Forged—Selected Alloy Steel
"SLUGGING WRENCHES"



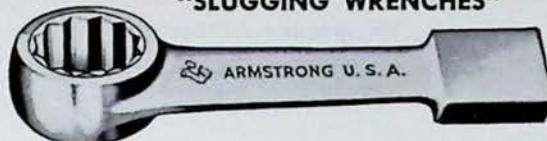
Accurately broached. Smoothly burnished.
Carefully heat treated. Finished in gray enamel.
Plainly stamped with catalog number and nominal opening.

This wrench is designed for rugged service in close quarters where the use of a hammer or sledge is required to set or loosen a nut.

All openings are broached slightly larger than nominal sizes listed to allow for proper clearance.
Wrenches with special openings available on special order.

ARMALLOY HEAVY STRIKING FACE BOX

7½° Angle
Double Hexagon (12-Point) Opening
Drop Forged—Selected Alloy Steel
"SLUGGING WRENCHES"



Accurately broached. Smoothly burnished.
Carefully heat treated. Finished in gray enamel.
Plainly stamped with catalog number and nominal opening.

Designed for extra rugged service in close quarters where large nuts must be set up tight, or frozen nuts loosened. Heads are extra thick to afford extra strength and full bearing in extreme service.

No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.	No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Outside Diam. Inches					Thick-ness Inches	Outside Diam. Inches	
8807	1 1/16	10 1/2	1 3/16	1 7/32	2.15	.....	...	...	...	...	...
8807-A	1 1/8	10 1/2	1 3/16	1 7/32	2.15	.....	...	...	...	...	...
8808	1 1/4	11	1 7/8	2 3/32	2.55	SFH-1808	1 1/4	7	1 3/16	2 1/16	1.36
8808-A	1 3/16	11	1 7/8	2 3/32	2.55	SFH-1808-A	1 3/16	7	1 3/16	2 1/16	1.36
8809	1 3/16	11 1/2	1	2 3/8	3.63	SFH-1809	1 3/16	8	1 3/16	2 3/8	2.06
8809-A	1 1/2	11 1/2	1	2 3/8	3.63	SFH-1809-A	1 1/2	8	1 3/16	2 3/8	2.06
8810	1 5/8	12	1 1/16	2 5/8	3.88	SFH-1810	1 5/8	9	1 1/8	2 5/8	3.00
8810-A	1 11/16	12	1 1/16	2 5/8	3.88	SFH-1810-A	1 11/16	9	1 1/8	2 5/8	3.00
8811	1 13/16	12 1/2	1 1/8	2 29/32	5.38	SFH-1811	1 13/16	10	1 3/4	2 15/16	3.87
8811-A	1 7/8	12 1/2	1 1/8	2 29/32	5.38	SFH-1811-A	1 7/8	10	1 3/4	2 15/16	3.87
8812	2	13	1 1/4	3 5/32	5.50	SFH-1812	2	11	1 3/8	3 1/4	5.53
8813	2 3/16	13 1/2	1 3/8	3 15/32	7.18	SFH-1813	2 3/16	12	1 1/2	3 1/2	6.77
8813-A	2 1/4	13 1/2	1 3/8	3 15/32	7.18	SFH-1813-A	2 1/4	12	1 1/2	3 1/2	6.77
8814	2 3/8	14	1 1/2	3 23/32	7.91	SFH-1814	2 3/8	13	1 5/8	3 3/4	8.19
8815	2 5/16	14 1/2	1 5/8	3 29/32	9.69	SFH-1815	2 5/16	14	1 3/4	4 1/8	10.70
8815-A	2 5/8	14 1/2	1 5/8	3 29/32	9.69	SFH-1815-A	2 5/8	14	1 3/4	4 1/8	10.78
8816	2 3/4	16	1 7/8	4 13/32	10.78	SFH-1816	2 3/4	15	1 7/8	4 9/16	13.50
8816-B	2 15/16	16	1 7/8	4 13/32	10.78	.....	...	...	...	...	...
8817-A	3	16 1/2	2	4 13/16	11.87	SFH-1817-A	3	17	2	4 13/16	18.80
8817	3 1/8	16 1/2	2	4 15/16	11.87	SFH-1817	3 1/8	17	2	4 13/16	18.80

ARMSTRONG WRENCHES

HI-TEN REGULAR STRIKING FACE BOX

15° Angle, Hexagon (6-Point) Opening
Drop Forged—Selected High Strength Steel—Gray Enameled
"SLUGGING WRENCHES"



Accurately broached. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Heads ground bright. Plainly stamped with catalog number and nominal opening. Especially designed for heavy work in close quarters where large nuts must be set up, or frozen nuts loosened.

No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Wt. Lb.	No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Wt. Lb.
			Thick-ness Inches	Outside Diam. Inches					Thick-ness Inches	Outside Diam. Inches	
SF-818-A	3 3/8	18	1 1/2	5 1/4	20.17	SF-819-AC	4 1/8	20	1 3/4	6 1/2	27.93
SF-818	3 1/2	18	1 1/2	5 1/4	20.17	SF-819-A	4 1/4	20	1 3/4	6 1/2	27.93
SF-819B	3 3/4	19	1 5/8	5 7/8	23.60	SF-820-B	4 1/2	21	1 7/8	7	30.80
SF-819	3 7/8	19	1 5/8	5 7/8	23.60	SF-820	4 5/8	21	1 7/8	7	30.80

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

REGULAR PATTERN BOX

Single Head

HI-TEN HEXAGON BOX

15° Angle—6-Point

Drop Forged—Selected High Strength Steel
Gray Enameled



Accurately broached. Smoothly burnished.
Carefully hardened and tempered.
Finished in gray baked-on enamel.
Stamped with catalog number and nominal opening.

ARMALLOY DOUBLE HEXAGON BOX

7½° Angle—12-Point

Drop Forged—Selected Alloy Steel
Chrome Plated



Accurately broached. Smoothly burnished. Carefully hardened and tempered. Chrome plated.

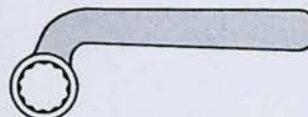
Heads faces buffed bright. Stamped with catalog number and nominal opening.

Slim head wall permits use where clearance limited. Double hexagon (12-point) opening permits nut to be rotated where swing is limited to 15°.

These wrenches can be furnished bent to 45° or 90° angle, on special order, as illustrated below.



45° Bent Handle



90° Bent Handle

Hi-Ten Hexagon Box Wrenches 15° Angle—6-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diam. Inches	
801-A	7/16	4	17/64	27/32	.10
801	1/2	4	17/64	27/32	.10
802-A	9/16	4 7/8	5/16	61/64	.17
803-A	5/8	5 1/8	23/64	13/32	.25
803	11/16	5 7/8	23/64	13/32	.25
804-A	3/4	6 7/8	13/32	1 1/4	.38
805-A	13/16	7 3/4	29/64	1 23/64	.52
805	7/8	7 3/4	29/64	1 23/64	.52
806	15/16	8 3/4	1/2	1 35/64	.69
806-B	1	8 3/4	1/2	1 35/64	.69
807	1 1/16	9 7/8	9/16	1 25/32	.80
807-A	1 1/8	9 7/8	9/16	1 25/32	.80
808	1 1/4	11 1/2	5/8	2 1/16	1.40
808-A	1 5/16	11 1/2	5/8	2 1/16	1.40
809	1 7/16	13 3/8	21/32	2 3/8	1.75
809-A	1 1/2	13 3/8	21/32	2 3/8	1.75
810	1 5/8	15 1/4	3/4	2 5/8	2.90
810-A	1 11/16	15 1/4	3/4	2 5/8	2.90
811	1 13/16	17	13/16	2 29/32	3.10
811-A	1 7/8	17	13/16	2 29/32	3.10
812	2	19	1 1/16	3 1/4	4.30
813	2 3/16	18 3/4	1	3 11/16	5.50
813-A	2 1/4	18 3/4	1	3 11/16	5.37
814	2 3/8	20 3/4	1 1/16	4 1/2	9.37
816	2 3/4	27 1/2	1 1/4	4 1/2	11.63

Armaloy Double Hexagon Box Wrenches 7½° Angle—12-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diam. Inches	
1801-A	7/16	4	17/64	27/32	.11
1801	1/2	4	17/64	27/32	.11
1802-A	9/16	4 7/8	5/16	61/64	.17
1803-A	5/8	5 1/8	23/64	13/32	.25
1803	11/16	5 7/8	23/64	13/32	.25
1804-A	3/4	6 7/8	13/32	1 1/4	.38
1804	29/64	6 7/8	13/32	1 1/4	.38
1805-A	13/16	7 3/4	29/64	1 23/64	.52
1805	7/8	7 3/4	29/64	1 23/64	.52
1806	15/16	8 3/4	1/2	1 35/64	.69
1806-B	1	8 3/4	1/2	1 35/64	.69
1807	1 1/16	9 7/8	9/16	1 25/32	.80
1807-A	1 1/8	9 7/8	9/16	1 25/32	.80
1808	1 1/4	11 1/2	5/8	2 1/16	1.40
1808-A	1 5/16	11 1/2	5/8	2 1/16	1.40
1809	1 7/16	13 3/8	21/32	2 3/8	1.75
1809-A	1 1/2	13 3/8	21/32	2 3/8	1.75
1810	1 5/8	15 1/4	3/4	2 5/8	2.90
1810-A	1 11/16	15 1/4	3/4	2 5/8	2.90
1811	1 13/16	17	13/16	2 29/32	3.10
1811-A	1 7/8	17	13/16	2 29/32	3.10
1812	2	19	1 1/16	3 1/4	4.30
1813-A	2 1/4	18 3/4	1	3 11/16	5.37
1814	2 3/8	20 3/4	1 1/16	4 1/2	9.37
.....	...	...	...	...	

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

ARMSTRONG WRENCHES**HEAVY PATTERN BOX**

Single Head

HI-TEN HEXAGON BOX**15° Angle—6-Point**Drop Forged—Selected High Strength Steel
Gray Enameled

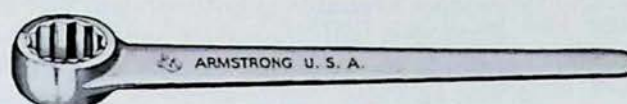
Accurately broached. Smoothly burnished.

Carefully hardened and tempered.

Finished in gray baked-on enamel.

Wrench plainly stamped with catalog number and nominal opening.

Designed for severe service where extra strength is required.

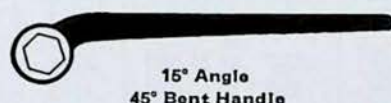
ARMALLOY DOUBLE HEXAGON BOX**7½° Angle—12-Point**Drop Forged—Selected Alloy Steel
Chrome Plated

Accurately broached. Smoothly burnished.

Carefully hardened and tempered. Wrench plainly stamped with catalog number and nominal opening.

Especially adapted for working in close quarters. Slim head wall and double hexagon opening permits rotation of nut when limited to a swing of only 15°.

These wrenches can be furnished bent to 45° or 90° angle, on special order, as illustrated below.

15° Angle
45° Bent Handle7½° Angle
90° Bent Handle**Hi-Ten Hexagon Box Wrenches****15° Angle—6-Point**

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Outside Diam.	
H808	1¼	11½	13/16	21/16	1.6
H809-A	1½	13¾	15/16	23/8	2.3
H810	1⅝	15¼	1⅞	2⅝	3.1
H811	1⅞	17	1¾	2⅞	3.8
H811-A	1⅞	17	1¾	2⅞	3.8
H812	2	19	1⅞	3¼	5.4
H813	2⅜	21	1½	3½	6.5
H813-A	2⅜	21	1½	3½	6.5
H814	2⅝	23	1⅝	3¾	7.8
H815	2⅞	25	1¾	4⅞	10.3
H815-A	2⅞	25	1¾	4⅞	10.3
H816	2¾	27	1⅞	4⅞	12.5
H817-A	3	30	2	4⅞	16.3
H817	3⅞	30	2	4⅞	16.3

Arm alloy Double Hexagon Box Wrenches**7½° Angle—12-Point**

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Outside Diam. Inches	
H1808	1¼	11½	13/16	21/16	1.6
H1808-A	1½	13¾	15/16	23/8	2.3
H1809	1⅝	15¼	1⅞	2⅝	3.1
H1809-A	1⅞	17	1¾	2⅞	3.8
H1810	1⅞	17	1¾	2⅞	3.8
H1810-A	1⅞	17	1¾	2⅞	3.8
H1811	2	19	1⅞	3¼	5.4
H1811-A	2	19	1⅞	3¼	5.4
H1812	2⅜	21	1½	3½	6.5
H1813	2⅜	21	1½	3½	6.5
H1813-A	2⅜	21	1½	3½	6.5
H1814	2⅝	23	1⅝	3¾	7.8
H1815	2⅞	25	1¾	4⅞	10.3
H1815-A	2⅞	25	1¾	4⅞	10.3
H1816	2¾	27	1⅞	4⅞	12.5
H1817-A	3	30	2	4⅞	16.3
H1817	3⅞	30	2	4⅞	16.3

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES STRUCTURAL PATTERN

Straight Opening "SPUD WRENCHES"

HI-TEN

**Drop Forged—Selected High Strength Steel
Parco Lubrite Finish**



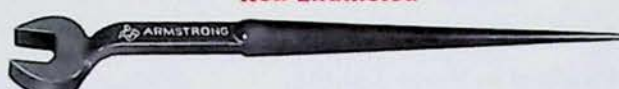
Handles are extra long and tapered for ease in lining up bolt holes, and are plainly stamped with catalog number and nominal opening. Offset head allows wrench handle to clear obstructions. Wrenches with special openings are available on special order.

Hi-Ten Structural Wrenches

No.	Nominal Opening Inches	Approx. Extreme Length Inches	Thick- ness Head Inches	Handle Offset at Head Inches	Approx. Weight Lb.
901-A	$\frac{7}{16}$	$9\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{3}{16}$	.33
901	$\frac{1}{2}$	$9\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{3}{16}$	.33
901-B	$\frac{9}{16}$	$9\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{3}{16}$	.33
903-A	$\frac{5}{8}$	12	$\frac{7}{16}$	$1\frac{5}{16}$	.75
903	$1\frac{1}{16}$	12	$\frac{7}{16}$	$1\frac{5}{16}$	.75
904-A	$\frac{3}{4}$	12	$\frac{7}{16}$	$1\frac{5}{16}$	.75
904	$2\frac{1}{32}$	12	$\frac{7}{16}$	$1\frac{5}{16}$	.75
905-A	$1\frac{3}{16}$	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25
905	$\frac{7}{8}$	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25
906	$1\frac{5}{16}$	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25
906-B	1	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25
907	$1\frac{1}{16}$	17	$\frac{5}{8}$	$1\frac{1}{8}$	2.00
907-A	$1\frac{1}{8}$	17	$\frac{5}{8}$	$1\frac{1}{8}$	2.00
908	$1\frac{1}{4}$	19	$1\frac{1}{16}$	$1\frac{1}{4}$	3.25
908-A	$1\frac{15}{16}$	19	$1\frac{1}{16}$	$1\frac{1}{4}$	3.25
909	$1\frac{1}{16}$	21	$\frac{3}{4}$	$1\frac{5}{16}$	4.25
909-A	$1\frac{1}{2}$	21	$\frac{3}{4}$	$1\frac{5}{16}$	4.25
910	$1\frac{5}{8}$	23	$1\frac{3}{16}$	$1\frac{3}{8}$	5.88
910-A	$1\frac{11}{16}$	23	$1\frac{3}{16}$	$1\frac{3}{8}$	5.88
911	$1\frac{13}{16}$	25	1	$1\frac{1}{2}$	7.50
911-A	$1\frac{7}{8}$	25	1	$1\frac{1}{2}$	7.50
912	2	25	1	$1\frac{1}{2}$	7.50

ARMALLOY

Drop Forged—Selected Alloy Steel
Red Enameled



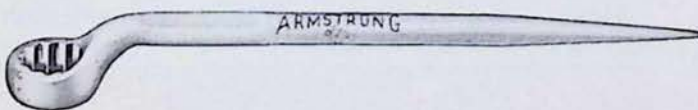
This new pattern structural wrench was designed for steel erection work: The tapered handle is used to line up bolt holes in steel beams. Offset head allows wrench handle to clear obstructions and also provides hand clearance without reducing nut tightening power. Deep opening enables full bearing on nut at all times. This style preferred by Iron Workers. Available in sizes for Regular or Heavy Duty bolts. Drop forged from selected alloy steel. Red baked-on enamel finish. Wrenches with special openings are available on special order.

Armalo Structural Wrenches

[illegible]

STRUCTURAL BOX PATTERN

**Double Hexagon (12-Point) Opening
Drop Forged—Selected Alloy Steel
Gray Enameled**



Accurately broached. Smoothly burnished. Carefully
hardened and tempered.

Finished in gray baked-on enamel.

Wrench plainly stamped with catalog number and nominal opening.

Maximum clearance at the offset allows a full grip on the nut at all times.

Handles are long and tapered for ease in lining up bolt holes.

Wrenches with special openings are available on special order.

No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Handle Offset at Head Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Handle Offset at Head Inches	Approx. Weight Lb.
			Thick-ness Inches	Outside Diam. Inches						Thick-ness Inches	Outside Diam. Inches		
8905-A	$1\frac{1}{16}$	12	$\frac{5}{8}$	$1\frac{3}{8}$	$1\frac{1}{8}$	1.15	8910	$1\frac{5}{8}$	$21\frac{1}{2}$	$1\frac{1}{16}$	$21\frac{1}{2}$	$1\frac{5}{8}$	4.64
8905	$\frac{7}{8}$	12	$\frac{5}{8}$	$1\frac{3}{8}$	$1\frac{1}{8}$	1.15	8910-A	$1\frac{11}{16}$	$21\frac{1}{2}$	$1\frac{1}{16}$	$21\frac{1}{2}$	$1\frac{5}{8}$	4.64
8906	$1\frac{5}{16}$	$13\frac{1}{2}$	$\frac{3}{4}$	$1\frac{9}{16}$	$1\frac{1}{4}$	1.43	8911	$1\frac{11}{16}$	23	$1\frac{1}{8}$	$23\frac{1}{4}$	$1\frac{11}{16}$	5.88
8906-B	1	$13\frac{1}{2}$	$\frac{3}{4}$	$1\frac{9}{16}$	$1\frac{1}{4}$	1.43	8911-A	$1\frac{11}{16}$	23	$1\frac{1}{8}$	$23\frac{1}{4}$	$1\frac{11}{16}$	5.88
8907	$1\frac{1}{16}$	$14\frac{3}{4}$	$1\frac{1}{16}$	$1\frac{11}{16}$	$1\frac{5}{16}$	2.11	8912	2	$24\frac{1}{2}$	$1\frac{1}{4}$	3	$1\frac{11}{16}$	6.51
8907-A	$1\frac{1}{8}$	$14\frac{3}{4}$	$1\frac{1}{16}$	$1\frac{11}{16}$	$1\frac{5}{16}$	2.11	8913	$2\frac{3}{16}$	26	$1\frac{3}{8}$	$3\frac{3}{8}$	2	8.41
8908	$1\frac{1}{4}$	17	$\frac{7}{8}$	2	$1\frac{7}{16}$	2.51	8914	$2\frac{3}{8}$	28	$1\frac{1}{2}$	$3\frac{21}{32}$	$2\frac{3}{8}$	9.50
8908-A	$1\frac{1}{16}$	17	$\frac{7}{8}$	2	$1\frac{7}{16}$	2.51	8915	$2\frac{3}{16}$	29	$1\frac{11}{16}$	$3\frac{27}{32}$	$2\frac{1}{4}$	10.60
8909	$1\frac{1}{16}$	21	1	$2\frac{1}{2}$	$1\frac{1}{2}$	3.84	8916	$2\frac{3}{4}$	29	$1\frac{3}{4}$	$4\frac{1}{8}$	$2\frac{3}{8}$	12.10
8909-A	$1\frac{1}{2}$	21	1	$2\frac{1}{2}$	$1\frac{1}{2}$	3.84							

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

ARMSTRONG HI-TEN WRENCHES**FACE SPANNER PATTERN**

Drop Forged—Selected High Strength Steel—Gray Enameled



Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel.

Pins are forged integral with wrench and are milled to exact sizes listed.

Wrenches with pins of smaller diameter or length can be furnished on special order.

No.	PINS			Span of Jaws in Clear Inches	Approx. Length from Center of Pins Inches	Approx. Wt. Lb.	No.	PINS			Span of Jaws in Clear Inches	Approx. Length from Center of Pins Inches	Approx. Wt. Lb.
	Distance C to C Inches	Diameter Milled Inches	Length Inches					Distance C to C Inches	Diameter Milled Inches	Length Inches			
418	1	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{1}{16}$	$4\frac{1}{2}$	.13	432	$2\frac{3}{4}$	$\frac{9}{32}$	$\frac{9}{32}$	$2\frac{3}{4}$	8	.67
420	$1\frac{1}{4}$	$\frac{7}{32}$	$\frac{7}{32}$	$\frac{7}{8}$	5	.17	434	3	$\frac{5}{16}$	$\frac{5}{16}$	$2\frac{1}{2}$	$8\frac{1}{2}$	.75
422	$1\frac{1}{2}$	$\frac{7}{32}$	$\frac{7}{32}$	$1\frac{1}{8}$	$5\frac{1}{2}$	.20	436	$3\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{16}$	$2\frac{3}{4}$	$9\frac{1}{8}$	.83
424	$1\frac{3}{4}$	$\frac{7}{32}$	$\frac{7}{32}$	$1\frac{3}{8}$	6	.25	438	$3\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$	3	$9\frac{3}{4}$	1.00
426	2	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{13}{32}$	$6\frac{1}{2}$	.33	440	$3\frac{3}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$3\frac{3}{16}$	$10\frac{3}{8}$	1.13
428	$2\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{27}{32}$	7	.40	442	4	$\frac{3}{8}$	$\frac{3}{8}$	$3\frac{1}{16}$	11	1.50
430	$2\frac{1}{2}$	$\frac{9}{32}$	$\frac{9}{32}$	$2\frac{1}{32}$	$7\frac{1}{2}$	.50							

ADJUSTABLE FACE SPANNER PATTERN

Drop Forged—Selected High Strength Steel—Gray Enameled

Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel.

Pins are forged integral with wrench and are milled.

Wrenches with pins of smaller diameter or length can be furnished on special order.



No.	Extreme Capacity Inches	Approximate Extreme Length Inches	Diameter of Pins Inches	Approx. Weight Lb.
482	2	$6\frac{3}{8}$	$\frac{3}{16}$	.41
483	3	$8\frac{1}{4}$	$\frac{1}{4}$	.76
484	4	$10\frac{3}{8}$	$\frac{5}{16}$	1.10

PIN SPANNER PATTERN

Drop Forged—Selected High Strength Steel—Gray Enameled

Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel.

Pins forged integral with wrench and are milled to exact sizes listed.

Wrenches with pins of smaller diameter or length can be furnished on special order.



No.	For Circle Diameter Inches	Finished Diameter Pin Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	For Circle Diameter Inches	Finished Diameter Pin Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
452	1	$\frac{3}{16}$	4	.08	460	3	$\frac{5}{16}$	8	.50
453	$1\frac{1}{4}$	$\frac{13}{64}$	$4\frac{1}{2}$	.10	461	$3\frac{1}{4}$	$\frac{21}{64}$	$8\frac{1}{2}$	.50
454	$1\frac{1}{2}$	$\frac{7}{32}$	5	.13	462	$3\frac{1}{2}$	$\frac{11}{32}$	9	.63
455	$1\frac{3}{4}$	$\frac{15}{64}$	$5\frac{1}{2}$	.17	463	$3\frac{3}{4}$	$\frac{23}{64}$	$9\frac{1}{2}$	.67
456	2	$\frac{1}{4}$	6	.20	464	4	$\frac{3}{8}$	10	.75
457	$2\frac{1}{4}$	$\frac{17}{64}$	$6\frac{1}{2}$	.25	466	5	$\frac{7}{16}$	12	1.00
458	$2\frac{1}{2}$	$\frac{9}{32}$	7	.33	468	6	$\frac{1}{2}$	14	1.38
459	$2\frac{3}{4}$	$\frac{19}{64}$	$7\frac{1}{2}$	.40	...	...	...	...	...

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

ADJUSTABLE HOOK SPANNER PATTERN

Drop Forged—Selected High Strength Steel—Gray Enameled

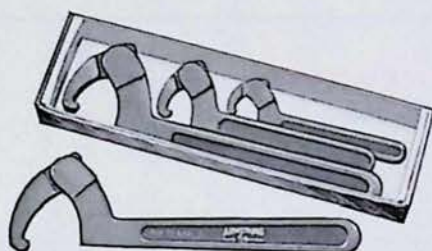


Smoothly burnished. Jaw is hardened.

Finished in gray baked-on enamel.

HI-TEN Hook Spanners will service many sizes of adjusting collars, rings and spindle bearings.

No.	Capacity for Circles, Diameter Inches	Approximate Extreme Length Inches	THICKNESS		Depth Hook Inches	Approximate Weight Lb.
			Handle Inches	Hook Inches		
471	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{32}$	$\frac{1}{8}$	.25
472	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$1\frac{3}{32}$	$\frac{5}{32}$	.48
474	2 to $4\frac{3}{4}$	$11\frac{3}{8}$	$\frac{5}{16}$	$1\frac{5}{32}$	$\frac{3}{16}$	.93
474-A	$4\frac{1}{2}$ to $6\frac{1}{4}$	$12\frac{1}{8}$	$\frac{5}{16}$	$1\frac{5}{32}$	$\frac{1}{4}$	1.00
474-B	$6\frac{1}{8}$ to $8\frac{3}{4}$	$13\frac{3}{4}$	$\frac{5}{16}$	$1\frac{5}{32}$	$\frac{5}{16}$	1.20



Hook Spanner Set No. 401C

Contains 1 each of Nos. 471, 472, 474 and 474-A.

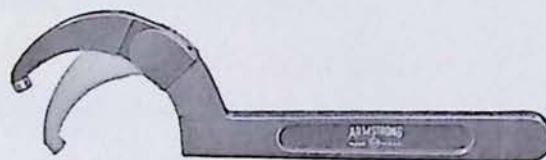
Furnished complete in cardboard box.

Approximate weight, 2.75 pounds.

ADJUSTABLE PIN SPANNER WRENCHES

With Round Pins

Drop Forged—Selected High Strength Steel—Gray Enameled



Smoothly burnished. Jaw is hardened.

Finished in gray baked-on enamel.

Especially suited for use on adjusting collars, rings, lock nuts.

Wrenches with pins of smaller diameter or length can be furnished on special order.

No.	Capacity for Circles, Diameter Inches	Approximate Extreme Length Inches	THICKNESS		PIN SIZE		Approximate Weight Lb.
			Handle Inches	Hook Inches	Diameter	Length	
0-471	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{32}$	$\frac{1}{8}$	$\frac{1}{8}$	.27
0-471-A	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{32}$	$\frac{3}{16}$	$\frac{5}{32}$	.27
0-472	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$1\frac{3}{32}$	$\frac{3}{16}$	$\frac{3}{16}$	.5
0-472-A	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$1\frac{3}{32}$	$\frac{1}{4}$	$\frac{7}{32}$	.5
0-474	2 to $4\frac{3}{4}$	$11\frac{3}{8}$	$\frac{5}{16}$	$1\frac{5}{32}$	$\frac{1}{4}$	$\frac{1}{4}$	.99
0-474-A	$4\frac{1}{2}$ to $6\frac{1}{4}$	$12\frac{1}{8}$	$\frac{5}{16}$	$1\frac{5}{32}$	$\frac{3}{8}$	$\frac{1}{4}$	1.10

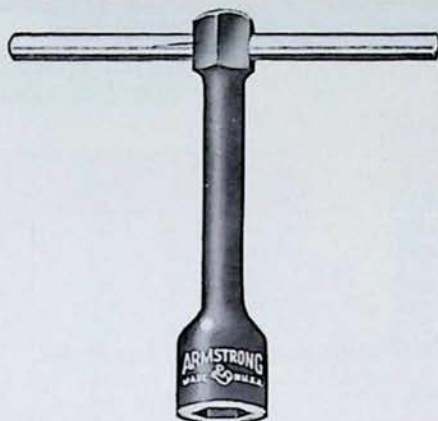


ARMSTRONG HI-TEN WRENCHES

SOCKET PATTERN

Straight Shank—With Removable Pin Handle

Drop Forged—Selected High Strength Steel



Hexagon Opening



Square Opening

Accurately broached. Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel.

Removable pin handle allows use of another wrench on hexagon end of shank.

Wrenches longer or shorter than standard lengths can be furnished on special order.

Hexagon Opening

No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
961-A	$\frac{5}{16}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	971-A	$1\frac{1}{16}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
962-D	$\frac{3}{8}$	$\frac{5}{8}$	$4\frac{1}{2}$	.20	971-D	$1\frac{1}{8}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
963-D	$\frac{7}{16}$	$1\frac{1}{16}$	$4\frac{7}{8}$	.25	973-A	$1\frac{1}{4}$	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
964-A	$\frac{1}{2}$	$\frac{3}{4}$	$5\frac{1}{4}$	.33	973-B	$1\frac{3}{16}$	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
965-D	$\frac{9}{16}$	$\frac{7}{8}$	$5\frac{3}{4}$	.50	975-A	$1\frac{7}{16}$	$2\frac{1}{8}$	10	4.00
966-D	$\frac{5}{8}$	1	$6\frac{1}{8}$	.75	975-D	$1\frac{1}{2}$	$2\frac{1}{8}$	10	4.00
967-A	$1\frac{1}{16}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88	976-A	$1\frac{5}{8}$	$2\frac{3}{8}$	$10\frac{3}{8}$	4.50
967-D	$\frac{3}{4}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88	977-A	$1\frac{13}{16}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50
968-D	$1\frac{3}{16}$	$1\frac{1}{4}$	7	1.00	977-B	$1\frac{7}{8}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50
969-A	$\frac{7}{8}$	$1\frac{3}{8}$	$7\frac{3}{8}$	1.25	978-A	2	$2\frac{7}{8}$	$11\frac{3}{8}$	6.75
970-S	$1\frac{5}{16}$	$1\frac{1}{2}$	$7\frac{7}{8}$	1.50	980-A	$2\frac{3}{8}$	$3\frac{1}{16}$	$12\frac{1}{2}$	11.00
970-D	1	$1\frac{1}{2}$	$7\frac{7}{8}$	1.50					

Square Opening

No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
961-H	$\frac{3}{16}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	968-P	$1\frac{1}{16}$	$1\frac{1}{4}$	7	1.00
961-J	$\frac{1}{4}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	969-H	$\frac{3}{4}$	$1\frac{3}{8}$	$7\frac{3}{8}$	1.25
962-H	$\frac{5}{16}$	$\frac{5}{8}$	$4\frac{1}{2}$	.20	971-H	$\frac{7}{8}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
963-H	$\frac{3}{8}$	$1\frac{1}{16}$	$4\frac{7}{8}$	.25	973-H	1	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
965-H	$\frac{7}{16}$	$\frac{7}{8}$	$5\frac{3}{4}$	.50	974-H	$1\frac{1}{8}$	2	$9\frac{1}{2}$	3.50
966-H	$\frac{1}{2}$	1	$6\frac{1}{8}$	.75					
967-H	$\frac{9}{16}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88					
968-H	$\frac{5}{8}$	$1\frac{1}{4}$	7	1.00					

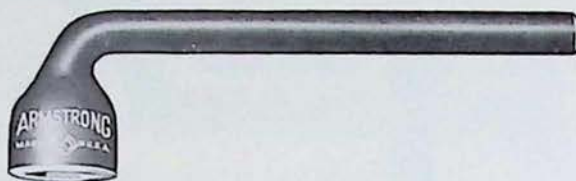
See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

OFFSET SOCKET PATTERN

Drop Forged—Selected High Strength Steel



Hexagon
Opening



Square
Opening

Accurately broached. Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel.

Wrenches with extra length at handle or offset can be furnished on special order.

Hexagon Opening

No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.	No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.
261-A	$\frac{5}{16}$	$\frac{1}{2}$	$3\frac{3}{4}$	$1\frac{3}{16}$	.13	271-A	$1\frac{1}{16}$	$1\frac{5}{8}$	10	$2\frac{3}{8}$	1.63
262-D	$\frac{3}{8}$	$\frac{5}{8}$	$4\frac{1}{2}$	1	.20	271-D	$1\frac{1}{8}$	$1\frac{5}{8}$	10	$2\frac{3}{8}$	1.63
263-D	$\frac{7}{16}$	$1\frac{1}{16}$	$4\frac{1}{2}$	$1\frac{1}{16}$	.20	273-A	$1\frac{1}{4}$	$1\frac{7}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.33
264-A	$\frac{1}{2}$	$\frac{3}{4}$	$5\frac{1}{2}$	$1\frac{1}{4}$	.25	273-B	$1\frac{5}{16}$	$1\frac{7}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.33
265-D	$\frac{9}{16}$	$\frac{7}{8}$	$6\frac{1}{2}$	$1\frac{1}{16}$	.38	275-A	$1\frac{1}{16}$	$2\frac{1}{8}$	$13\frac{1}{4}$	$3\frac{1}{8}$	3.50
266-D	$\frac{5}{8}$	1	$6\frac{1}{2}$	$1\frac{1}{16}$	.38	275-D	$1\frac{1}{2}$	$2\frac{1}{8}$	$13\frac{1}{4}$	$3\frac{1}{8}$	3.50
267-A	$1\frac{1}{16}$	$1\frac{1}{8}$	$7\frac{1}{4}$	$1\frac{5}{8}$	.63	276-A	$1\frac{5}{8}$	$2\frac{3}{8}$	$14\frac{7}{8}$	$3\frac{1}{2}$	4.50
267-D	$\frac{3}{4}$	$1\frac{1}{8}$	$7\frac{1}{4}$	$1\frac{5}{8}$	.63	277-A	$1\frac{13}{16}$	$2\frac{5}{8}$	$16\frac{1}{2}$	$3\frac{7}{8}$	6.00
268-D	$1\frac{3}{16}$	$1\frac{1}{4}$	8	$1\frac{13}{16}$	.88	277-B	$1\frac{7}{8}$	$2\frac{5}{8}$	$16\frac{1}{2}$	$3\frac{7}{8}$	6.00
269-A	$\frac{7}{8}$	$1\frac{3}{8}$	$8\frac{3}{8}$	2	.88	278-A	2	$2\frac{7}{8}$	$18\frac{1}{4}$	$4\frac{3}{8}$	8.13
270-S	$1\frac{5}{16}$	$1\frac{1}{2}$	$9\frac{1}{8}$	$2\frac{3}{16}$	1.25	279-A	$2\frac{3}{16}$	3	20	$4\frac{7}{8}$	10.00
270-D	1	$1\frac{1}{2}$	$9\frac{1}{8}$	$2\frac{3}{16}$	1.25	280-A	$2\frac{3}{8}$	$3\frac{5}{16}$	$21\frac{3}{4}$	$5\frac{3}{8}$	12.33

Square Opening

No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.	No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.
261-J	$\frac{1}{4}$	$\frac{1}{2}$	$3\frac{3}{4}$	$1\frac{3}{16}$	.13	268-P	$1\frac{1}{16}$	$1\frac{1}{4}$	8	$1\frac{13}{16}$	1.00
262-H	$\frac{5}{16}$	$\frac{5}{8}$	$4\frac{1}{2}$	1	.25	269-H	$\frac{3}{4}$	$1\frac{3}{8}$	$8\frac{3}{8}$	2	1.00
263-H	$\frac{3}{8}$	$1\frac{1}{16}$	$5\frac{1}{2}$	$1\frac{1}{16}$	.33	271-H	$\frac{7}{8}$	$1\frac{5}{8}$	10	$2\frac{3}{8}$	1.75
265-H	$\frac{7}{16}$	$\frac{7}{8}$	$6\frac{1}{2}$	$1\frac{1}{16}$	.44	273-H	1	$1\frac{7}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.50
266-H	$\frac{1}{2}$	1	$6\frac{1}{2}$	$1\frac{1}{16}$	.44	274-H	$1\frac{1}{8}$	2	$12\frac{3}{8}$	$2\frac{7}{8}$	2.50
267-H	$\frac{9}{16}$	$1\frac{1}{8}$	$7\frac{1}{4}$	$1\frac{5}{8}$	.63						
268-H	$\frac{5}{8}$	$1\frac{1}{4}$	8	$1\frac{13}{16}$	1.00						

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

SET SCREW PATTERN

22½° Angle—Single Head

For Set Screws, Square Head Cap Screws and Nuts
Gray Enameled

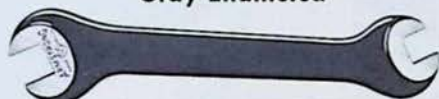


No.	Nominal Opening Inches	Approximate Extreme Length, In.	Thickness Head Inches	Approx. Weight Lb.
500	3/16	3	3/16	.04
501	1/4	3 5/8	1/4	.06
502	5/16	4 1/2	5/32	.10
503	3/8	5 3/8	11/32	.20
504	7/16	6 1/4	3/8	.33
505	1/2	7	7/16	.38
506	5/8	7 1/2	1/2	.50
507	3/4	8	5/8	.75
508	7/8	9 1/4	3/4	1.00
509	1	10 1/2	11/16	1.50
510	1 1/8	11 1/2	3/4	2.00

SET SCREW PATTERN

22½° Angle—Double Head

For Set Screws, Square Head Cap Screws and Nuts
Gray Enameled



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Thickness Head Inches	Approx. Weight Lb.
523	3/16 & 1/4	3 3/8	3/16	.10
524	1/4 & 5/16	4	1/4	.13
525	1/4 & 3/8	4	1/4	.13
526	1/4 & 5/8	5	5/16	.17
527	5/16 & 3/8	5	5/16	.17
529	3/8 & 7/16	5 7/8	11/32	.33
530	3/8 & 1/2	6 5/8	3/8	.50
531	7/16 & 1/2	6 5/8	3/8	.50
533	1/2 & 9/16	7 1/2	1/2	.75
534	1/2 & 5/8	8 3/8	17/32	1.00
535	5/8 & 3/4	8 3/8	17/32	1.00
537	5/8 & 3/4	10	5/8	1.50
539	3/4 & 7/8	11 3/8	17/16	2.00

DOUBLE HEAD TOOL POST PATTERN

For Set Screws

Drop Forged—Selected High Strength Steel
Gray Enameled



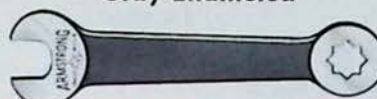
No.	Open End for Set Screw; Size Inches	Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thickness Heads Inches	Approx. Weight Lb.
554	7/16	7/16	5 1/2	15/32	.38
555	1/2	1/2	6	17/32	.50
555-C	5/8	5/8	6	17/32	.50
556	3/4	3/4	6 3/4	3/4	.75
557	7/8	7/8	7 1/2	17/16	1.00

ARMSTRONG HI-TEN WRENCHES

DOUBLE HEAD TOOL POST PATTERN

For Nuts and Set Screws

Drop Forged—Selected High Strength Steel
Gray Enameled



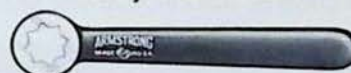
No.	Nominal Opening Inches	Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thickness Heads Inches	Approx. Weight Lb.
563-E	13/16	7/16	7	1/2	.75
563-B	7/8	1/2	7	1/2	.75
563-D	7/8	5/8	7	1/2	.75
564	1 1/16	5/8	8	5/8	1.00
565	1 1/16	3/4	8	5/8	1.00
566	1 1/4	3/4	9	11/16	1.50

SQUARE BOX PATTERN

(Double Square Broached)

22½° Angle—Single Head

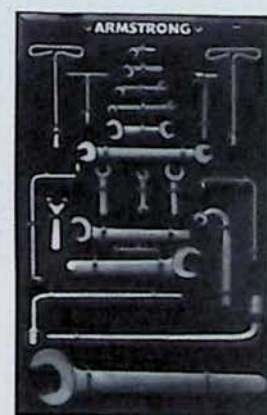
For Set Screws, Square Cap Screws and Nuts
Drop Forged—Selected High Strength Steel
Gray Enameled



No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diameter Inches	
581	1/4	3 3/8	5/16	21/32	.06
582	5/16	3 3/4	5/16	1 1/16	.13
583	3/8	4 1/4	11/32	7/8	.17
584	7/16	4 7/8	3/8	1	.25
585	1/2	5 1/2	7/16	1 1/8	.33
586	5/8	6 1/4	1/2	1 3/16	.50
587	3/4	7	5/8	1 5/16	.63
588	7/8	8	3/4	1 7/8	.75
589	1	9	7/8	2 1/4	1.00
590	1 1/8	10	1	2 1/2	1.50
591	1 1/4	11	1 1/8	2 7/8	1.88

ARMSTRONG SPECIAL WRENCHES

When other than stock wrenches are needed for special application, consult your ARMSTRONG representative or write directly to our general offices, Chicago. A print or sketch should accompany such inquiry.





SOCKET WRENCHES

ARMSTRONG Socket Wrenches are made in a very wide range of sizes and types to meet every requirement you may have. From the Miniature Series to the Extra Heavy Duty Series, each socket, ratchet, drive, extension or accessory is made of the finest heat treated alloy steels to combine great strength with lightest possible bulk and weight. The following pages illustrate and describe the extensive range of individual tools as well as a broad selection of Socket Wrench Sets.



The ARMSTRONG Line of Tool Boxes, Tool Chests and Mobile Tool Cabinets contains units to meet virtually every industrial or personal need.

Miscellaneous hand tools—a wide selection of Pliers, Screwdrivers and Punches and Chisels are also included in this section. Each of these tools bears the ARMSTRONG Arm-and-Hammer Trademark—your guarantee of highest tool quality and complete satisfaction.

Look to your Industrial Distributor for good advice and prompt service in any of your tool needs. *His only business is serving you.* Take advantage of the speed and money-saving economies he offers in every industrial need.

ARMSTRONG ARMALLOY SOCKET WRENCHES

Miniature Series—1/4" Square Drive

1/4"

Selected Alloy Steel

Chrome Plated
SOCKETSHexagon
6-Point
Opening12-Point
OpeningExtra Deep
6-Point
Opening18-(or 4) Point
OpeningPHILLIPS
SCREW DRIVERSSTANDARD
SCREW DRIVERSBLACK FINISH
SOCKETS

6-Point Opening



Deep, 6-Point Opening

Nominal Opening Inches	No.	Approx. Wt., Lb.
1/8	NM-604	.02
5/32	NM-605	.02
3/16	NM-606	.02
7/32	NM-607	.02
1/4	NM-608	.02
9/32	NM-609	.02
5/16	NM-610	.02
11/32	NM-611	.03
3/8	NM-612	.03
7/16	NM-614	.04
1/2	NM-616	.05

Nominal Opening Inches	No.	Approx. Wt., Lb.
5/16	NM-1210	.02
11/32	NM-1211	.03
3/8	NM-1212	.03
7/16	NM-1214	.04
1/2	NM-1216	.05
9/16	NM-1218	.06

Nominal Opening Inches	No.	Approx. Wt., Lb.
1/4	NMD-608	.03
9/32	NMD-609	.03
5/16	NMD-610	.04
11/32	NMD-611	.04
3/8	NMD-612	.04
7/16	NMD-614	.04
1/2	NMD-616	.05
9/16	NMD-618	.05

All 1/4" Drive Extra Deep Sockets,
2" long.

Nominal Opening Inches	No.	Approx. Wt., Lb.
3/16	NM-406	.03
7/32	NM-407	.03
1/4	NM-408	.03
5/16	NM-810	.03
3/8	NM-812	.05

Phillips Bit Size	No.	Lgth. In.	Approx. Wt., Lb.
1	NMP-12	1 7/8	.04
2	NMP-22	1 7/8	.05
2	NMP-23	3	.07

Tip Size Inches	No.	Length Inches	Approx. Wt., Lb.
3/16 x 1/32	NM-22C	2 7/16	.05
1/4 x 1/32	NM-23C	2 7/16	.07

Nominal Opening Inches	No.	Approx. Wt., Lb.
3/16	NMB606	.02
7/32	NMB607	.02
1/4	NMB608	.02
9/32	NMB609	.02
5/16	NMB610	.02
11/32	NMB611	.03
3/8	NMB612	.03
7/16	NMB614	.04
1/2	NMB616	.05

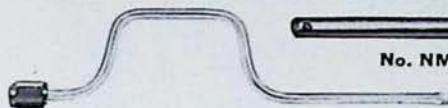
Nominal Opening Inches	No.	Approx. Wt., Lb.
1/4	NMDB608	.03
5/16	NMDB610	.04
3/8	NMDB612	.04
7/16	NMDB614	.04

Selected Alloy Steel

Chrome Plated DRIVE PARTS



No. NM-106 Plastic Handle Socket Driver

Nos. MF-130, MF-131
Adapters

No. NM-15 Speeder



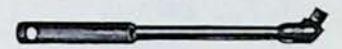
No. NM-42B Sliding Bar



No. NM-110 Extension Driver

Nos. NM-102, NM-115,
NM-116 Extensions

No. NM-20A Sliding T Handle

No. NM-140
Universal JointNo. NM-91
Reversible RatchetNo. NM-42
Flexible Hinge Handle

No.	Description	Approx. Wt., Lb.
NM-91	Reversible Ratchet, 4 3/4" Long	.22
NM-15	Speeder, Knurled Spin Grip 15 3/4" Long	.55
NM-20A	Sliding T Handle, 4 1/2" Long	.13
NM-42	Flexible Hinge Handle, 5 3/4" Long; Drilled for 1/4" Sliding Bar	.19
NM-42B	Sliding Bar, 1/4 x 4 1/2"; For No. NM-12	.09
NM-106	Plastic Handle Socket Driver 6" long	.13
NM-110	Extension-Driver, with knurled Spin Grip. Knurled Handle may be locked for use as a driver. 5 1/2" long	.38
NM-102	Extension, 2" Long	.06
NM-115	Extension, 6" Long	.16
NM-116	Extension, 14" Long	.35
MF-130	Adapter, 1/4" Sq. Female, 3/8" Sq. Male	.06
MF-131	Adapter, 1/4" Sq. Male, 3/8" Sq. Female	.06
NM-140	Universal Joint	.06

RATCHET REPAIR KIT

Kit No.	For Ratchet No.
NM-91-RK	NM-91

Contains the following parts, with instructions, in an envelope: Gear, Two springs, Shifting lever, Shifter, Two pawls (L. & R. hand), Face plate, Two plate screws, & lock washers.

BLACK FINISH DRIVE PARTS



No. NMB-91 Reversible Ratchet



Extensions



No. NMB-42 Flexible Hinge Handle

No. FMB-150
Plug Adapter

No.	Description	Approx. Wt., Lb.
NMB91	Reversible Ratchet, 4 3/4" Long	.22
NMB102	Extension, 2" Long	.06
NMB115	Extension, 6" Long	.16
NMB42	Flexible Hinge Handle, 5 3/4" Long; Drilled for 1/4" Sliding Bar	.15
FMB150	Plug Adapter, 3/8" Sq. Male, 1/4" Sq. Male	.09

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



1/4"

ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Miniature Series—1/4" Square Drive

HEX DRIVERS AND BITS



Wrench Size, In.	Complete Tool		Bit Only	
	No.	Length In.	No.	Length In.
3/64	NMA-2A	1 3/4	B-2A	1 3/8
3/32	NMA-3	1 3/4	B-3	1 3/8
1/64	NMA-3A	1 3/4	B-3A	1 3/8
1/8	NMA-4	1 7/8	B-4	1 5/16
9/64	NMA-4A	1 7/8	B-4A	1 5/16
3/32	NMA-5	1 7/8	B-5	1 5/16
3/16	NMA-6	1 7/8	B-6	1 5/16
7/32	NMA-7	1 7/8	B-7	1 5/16
1/4	NMA-8	1 7/8	B-8	1 5/16
5/16	NMA-10	1 7/8	B-10	1 5/16

No. NM-10HS HEX DRIVER SET

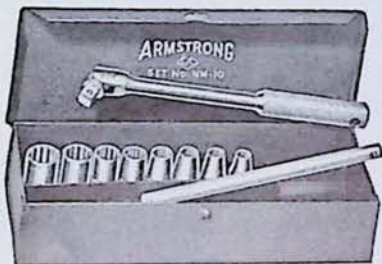
Contents, 10 Hex Head Wrenches. Complete with Steel Case No. C-2A. Approximate weight, 1.09 lb.



Wrench Size, In.	No.
3/64	NMA-2A
3/32	NMA-3
1/64	NMA-3A
1/8	NMA-4
9/64	NMA-4A
3/32	NMA-5
3/16	NMA-6
7/32	NMA-7
1/4	NMA-8
5/16	NMA-10

SET No. NM-10

Contents, 10 Pieces: 8 Sockets, 2 Drive Parts. Complete with Steel Case No. C-1. Approximate weight, 1 lb.



Sockets

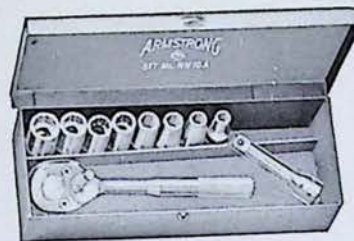
One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
NM-606	3/16	NM-609	9/32	NM-1212	3/8
NM-607	7/32	NM-1210	5/16	NM-1214	7/16
NM-608	1/4	NM-1211	11/32		

Drive Parts

NM-42, Flex. Hinge Handle, 5 3/4" Long.
NM-42B, Sliding Bar, 4 1/2" Long.

SET No. NM-10A

Contents, 10 Pieces: 8 Sockets, 2 Drive Parts. Complete with Steel Case No. C-1. Approximate weight, 1 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
NM-606	3/16	NM-609	9/32	NM-1212	3/8
NM-607	7/32	NM-1210	5/16	NM-1214	7/16
NM-608	1/4	NM-1211	11/32		

Drive Parts

NM-91, Rev. Ratchet, 4 3/4" Long.
NM-102, Extension, 2" Long.

SET No. NM-14

Contents, 14 pieces: 10 sockets, 3 screw driver attachments, 1 drive part. Complete with Steel Case No. C-1. Approximate weight, 1.09 lb.



Sockets

One Each No.	Nom. Opening Inches	One Each No.	Nom. Opening Inches	One Each No.	Nom. Opening Inches
NM-606	3/16	NM-1210	5/16	NM-1214	7/16
NM-607	7/32	NM-1211	11/32	NM-1216	1/2
NM-608	1/4	NM-1212	3/8	NM-1218	9/16
NM-609	9/32				

Drive Parts

NM-106, Shock-proof handle.
NM-23C, Screwdriver.
NMP-12, #1 Phillips Screwdriver.
NMP-22, #2 Phillips Screwdriver.



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Miniature Series— $\frac{1}{4}$ " Square Drive

$\frac{1}{4}$ "

SET No. NM-18P

Contents, 18 Pieces: 8 Sockets, 4 Drive Parts, 5 Miniature Open End Wrenches, 1 Miniature Pliers. Complete with Steel Case No. C-1. Approx. weight, 1.75 lb.

Set No. **NM-18**, Same, less Pliers; Approx. wt., 1.66 lb.



Sockets and Wrenches

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
NM-606	$\frac{3}{16}$	NM-1211	$\frac{11}{32}$	*H-14	$\frac{5}{16}$ & $\frac{11}{32}$
NM-607	$\frac{7}{32}$	NM-1212	$\frac{3}{8}$	*H-16	$\frac{3}{8}$ & $\frac{7}{16}$
NM-608	$\frac{1}{4}$	NM-1214	$\frac{7}{16}$	*H-18	$\frac{13}{32}$ & $\frac{15}{32}$
NM-609	$\frac{9}{32}$	*H-10	$\frac{3}{16}$ & $\frac{7}{32}$		
NM-1210	$\frac{5}{16}$	*H-12	$\frac{1}{4}$ & $\frac{9}{32}$		

*Armaly Miniature 15° Angle Open End Wrench.

Drive Parts

NM-91, Rev. Ratchet, $4\frac{3}{4}$ " Long.
 NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
 NM-102, Extension, 2" Long.
 NM-115, Extension, 6" Long.
 1519-A, Miniature Pliers.

SET No. NM-19P

Contents, 19 Pieces: 8 Sockets, 4 Drive Parts, 1 Miniature Pliers, No. 1186C 6-Piece Combination Wrench Set. Complete with Steel Case No. C-1. Approx. weight, 2.37 lb.

Set No. **NM-19**, Same, less Pliers; Approx. wt., 2.3 lb.



Sockets and Wrenches

One Each No.	Nominal Opening In.	One Each No.	Nominal Opening In.	One Each No.	Nominal Opening In.
NM-606	$\frac{3}{16}$	NM-1211	$\frac{11}{32}$	†1158-A	$\frac{9}{32}$ & $\frac{3}{16}$
NM-607	$\frac{7}{32}$	NM-1212	$\frac{3}{8}$	†1159	$\frac{3}{16}$ & $\frac{3}{16}$
NM-608	$\frac{1}{4}$	NM-1214	$\frac{7}{16}$	†1159-A	$\frac{11}{32}$ & $\frac{11}{32}$
NM-609	$\frac{9}{32}$	†1157	$\frac{7}{32}$ & $\frac{7}{32}$	†1160	$\frac{3}{8}$ & $\frac{3}{8}$
NM-1210	$\frac{5}{16}$	†1158	$\frac{1}{4}$ & $\frac{1}{4}$		

†Armaly Combination Wrench.

Drive Parts

NM-91, Rev. Ratchet, $4\frac{3}{4}$ " Long.
 NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
 NM-102, Extension, 2" Long.
 NM-115, Extension, 6" Long.
 1519-A, Miniature Pliers.

SET No. NM-24P

Contents, 24 Pieces: 8 Sockets, 5 Drive Parts, 1 No. 1519-A Pliers. 10 15°—75° Angle Miniature Wrenches. Complete with Steel Case No. C-1. Approximate weight, 2 lb.

Set No. **NM-24**, Above Set, less Pliers; Approximate weight, 1.9 lb.



Sockets and Wrenches

One Each No.	Nom. Opening Inches	One Each No.	Nom. Opening Inches	One Each No.	Nom. Opening Inches
NM-606	$\frac{3}{16}$	NM-1212	$\frac{3}{8}$	*1116	$\frac{1}{4}$ & $\frac{1}{4}$
NM-607	$\frac{7}{32}$	NM-1214	$\frac{7}{16}$	*1118	$\frac{9}{32}$ & $\frac{9}{32}$
NM-608	$\frac{1}{4}$	*1112	$\frac{3}{16}$ & $\frac{3}{16}$	*1120	$\frac{3}{16}$ & $\frac{3}{16}$
NM-609	$\frac{9}{32}$	*1113	$\frac{13}{64}$ & $\frac{13}{64}$	*1122	$\frac{11}{32}$ & $\frac{11}{32}$
NM-1210	$\frac{5}{16}$	*1114	$\frac{7}{32}$ & $\frac{7}{32}$	*1124	$\frac{3}{8}$ & $\frac{3}{8}$
NM-1211	$\frac{11}{32}$	*1115	$\frac{15}{64}$ & $\frac{15}{64}$	*1128	$\frac{7}{16}$ & $\frac{7}{16}$

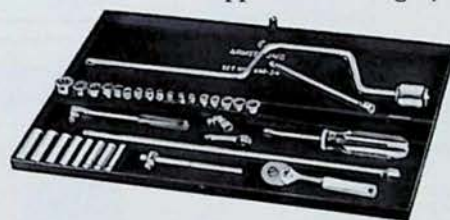
*Armaly miniature wrench, 15° and 75° angle openings.

Drive Parts

NM-91, Rev. Ratchet, $4\frac{3}{4}$ " Long.
 NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
 NM-106, Plastic Handle Socket Driver, 6" Long.
 NM-102, Extension, 2" Long.
 NM-115, Extension, 6" Long.
 1519-A, Miniature Pliers.

SET No. NM-34

Contents, 34 Pieces: 25 Sockets, 9 Drive Parts, Complete with Steel Case No. C-34. Approximate weight, 3.8 lb.



Sockets

One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.
NM-406	$\frac{3}{16}$	NM-608	$\frac{1}{4}$	NMD-608	$\frac{1}{4}$
NM-407	$\frac{7}{32}$	NM-609	$\frac{9}{32}$	NMD-609	$\frac{9}{32}$
NM-408	$\frac{1}{4}$	NM-1210	$\frac{5}{16}$	NMD-610	$\frac{5}{16}$
NM-810	$\frac{1}{16}$	NM-1211	$\frac{11}{32}$	NMD-611	$\frac{11}{32}$
NM-812	$\frac{3}{8}$	NM-1212	$\frac{3}{8}$	NMD-612	$\frac{3}{8}$
NM-604	$\frac{1}{8}$	NM-1214	$\frac{7}{16}$	NMD-614	$\frac{7}{16}$
NM-605	$\frac{5}{32}$	NM-1216	$\frac{1}{2}$	NMD-616	$\frac{1}{2}$
NM-606	$\frac{3}{16}$	NM-1218	$\frac{3}{16}$	NMD-618	$\frac{3}{16}$
NM-607	$\frac{7}{32}$				

Drive Parts

NM-91, Reversible Ratchet, $4\frac{3}{4}$ " Long.
 NM-106, Plastic Handle Socket Driver, 6" Long.
 NM-42, Flexible Hinge Handle, $5\frac{3}{4}$ " Long.
 NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
 NM-102, 2" Extension.
 NM-115, 6" Extension.
 NM-116, 14" Extension.
 NM-140, Universal Joint.
 NM-15, Speeder, $15\frac{3}{4}$ " Long.



3/8"

ARMSTRONG ARMALLOY SOCKET WRENCHES

Light Series 3/8" Square Drive

Made from selected alloy steel. Heat treated and tested to assure maximum strength. Gauged to accurate limits. Designed with thin head walls which grip the crowded or awkwardly placed nut, yet provide sufficient strength to loosen stubborn nuts and bolts. Especially useful in general work of light character.

Selected Alloy Steel

Chrome Plated Sockets



12-Point Opening



6-Point Opening



14- and 8-Point Opening



Extra Deep 12-Point Openings



Extra Deep 6-Point Opening



Special Spark Plug Socket With Rubber Insert *No. FD-626R

Nominal Opening Inches	No.	Approx. Weight Lb.
1/4	F-1208	.04
5/16	F-1210	.04
11/32	F-1211	.05
3/8	F-1212	.05
7/16	F-1214	.05
1/2	F-1216	.06
9/16	F-1218	.07
19/32	F-1219	.08
5/8	F-1220	.09
11/16	F-1222	.11
3/4	F-1224	.13
25/32	F-1225	.14
13/16	F-1226	.15
7/8	F-1228	.18
15/16	F-1230	.21
1	F-1232	.23

Nominal Opening Inches	No.	Approx. Weight Lb.
1/4	F-608	.04
5/16	F-610	.04
3/8	F-612	.05
7/16	F-614	.05
1/2	F-616	.06
9/16	F-618	.07
5/8	F-620	.09
11/16	F-622	.11
3/4	F-624	.13

Nominal Opening Inches	No.	Approx. Weight Lb.
9/32	F-409	.04
5/16	F-810	.05
3/8	F-812	.06
7/16	F-814	.07
1/2	F-816	.22
9/16	F-818	.12
5/8	F-820	.18

Nominal Opening Inches	No.	Approx. Weight Lb.
3/8	FD-1212	.08
7/16	FD-1214	.10
1/2	FD-1216	.10
9/16	FD-1218	.13
5/8	FD-1220	.16
11/16	FD-1222	.22
3/4	FD-1224	.22
13/16	FD-1226	.24
7/8	FD-1228	.25

Nominal Opening Inches	No.	Approx. Weight Lb.
3/8	FD-612	.08
7/16	FD-614	.10
1/2	FD-616	.10
9/16	FD-618	.13
5/8	FD-620	.16
11/16	FD-622	.22
3/4	FD-624	.22
13/16	FD-626	.24
7/8	*FD-626R	.36



Flex Socket



Box Type Crowfoot



Open End Crowfoot



HEX DRIVERS



PHILLIPS SCREW DRIVERS



STANDARD SCREW DRIVERS

BLACK FINISH SOCKETS



12-Point Opening

Nominal Opening Inches	No.	Approx. Weight Lb.
3/8	FX-1212	.09
7/16	FX-1214	.09
1/2	FX-1216	.09
9/16	FX-1218	.10
5/8	FX-1220	.11
11/16	FX-1222	.11
3/4	FX-1224	.13

Nominal Opening Inches	No.	Length Overall Inches	Approx. Weight Lb.
5/8	FB-120	13/8	.08
11/16	FB-122	11/2	.07
3/4	FB-124	11/2	.07
13/16	FB-126	15/8	.10
7/8	FB-128	15/8	.12
15/16	FB-130	13/4	.13
1	FB-132	17/8	.13

Nominal Opening Inches	No.	Length Overall Inches	Approx. Weight Lb.
3/8	FO-112	21/16	.12
7/16	FO-114	21/8	.14
1/2	FO-116	21/8	.13
9/16	FO-118	27/32	.14
5/8	FO-120	27/32	.13
11/16	FO-122	23/16	.21
3/4	FO-124	23/16	.20
7/8	FO-128	23/8	.24

Hex Wrench Size, In.	Complete Tool No.	Length In.	Bit Only No.	Length In.
1/8	FA-4	21/16	B-4	15/16
5/32	FA-5	21/16	B-5	15/16
3/16	FA-6	21/16	B-6	15/16
7/32	FA-7	21/16	B-7	15/16
1/4	FA-8	21/16	B-8	15/16
5/16	FA-10	21/16	B-10	13/8
3/8	FA-12	21/4	B-12	19/16

Phillips Bit Size	No.	Lgth. In.	Approx. Wt., Lb.
1	FP-12	21/16	.04
2	FP-22	21/16	.05
3	FP-32	21/16	.06
4	*FP-41	111/16	.05
4	FP-42	21/16	.08

*Has a short bit for door handle work.

Tip Size Inches	No.	Length Inches	Approx. Wt., Lb.
1/4x1/32	F-23C	25/8	.07
5/16x3/64	F-25C	25/8	.08
3/8x1/16	F-31C	25/8	.10

Nominal Open., In.	No.	Approx. Wt., Lb.	Nominal Open., In.	No.	Approx. Wt., Lb.
1/4	FB-1208	.04	5/16	FB-1218	.07
5/16	FB-1210	.05	5/8	FB-1220	.09
3/8	FB-1212	.05	11/16	FB-1222	.11
7/16	FB-1214	.05	3/4	FB-1224	.13
1/2	FB-1216	.06			

For 3/8" Sq. Drive Extra Deep Power Drive Socket see page 89.

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

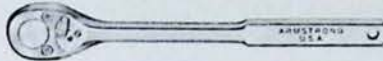


ARMSTRONG ARMALLOY SOCKET WRENCHES

Light Series— $\frac{3}{8}$ " Square Drive

$\frac{3}{8}$ "

**Chrome Plated
DRIVE PARTS**
Selected Alloy Steel

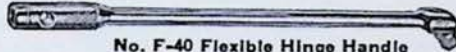


No. F-91 Reversible Ratchet—Round Handle

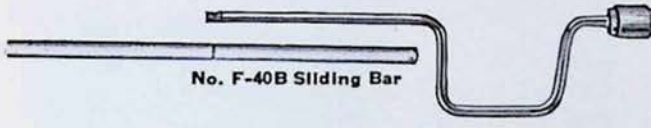
No. F-91 Reversible Ratchet—Stop ball prevents accidental reversing of ratchet action during use. Construction features facilitate use in close quarters. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Internal mechanism is of tested and proven design. Fine tooth—narrow head. Bright chrome finish.



No. F-20A Sliding T Handle

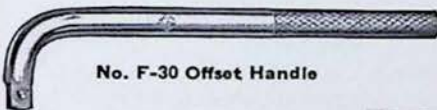


No. F-40 Flexible Hinge Handle



No. F-40B Sliding Bar

No. F-15 Speeder



No. F-30 Offset Handle



No. F-106 Plastic Handle Socket Driver



Nos. F-102, F-103, F-110, F-115, F-117 Extension Bars



No. F-140 Universal Joint



Nos. MF-130, FS-130 Adapters

No.	Description	Approx. Wt., Lb.
F-91	Reversible Ratchet, $7\frac{1}{2}$ " Long.....	.50
F-20A	Sliding T Handle, 8" Long.....	.30
F-40	Flexible Hinge Handle, $8\frac{1}{2}$ " Long; May be Used as Exten.; Drilled for $\frac{3}{16}$ " Sliding Bar.....	.56
F-40B	Sliding Bar, $\frac{5}{16} \times 7$ "; For No. F-40.....	.38
F-30	Offset Handle, Knurled Grip, $7\frac{3}{4}$ " Long..	.50
F-15	Speeder, Knurled Spin Grip, $16\frac{1}{2}$ " Long .	1.06
F-102	Extension $1\frac{3}{4}$ " Long.....	.15
F-103	Extension Bar, 3" Long.....	.19
F-106	Plastic handle socket driver.....	.20
F-110	Extension Bar, 6" Long.....	.25
F-115	Extension Bar, $10\frac{1}{2}$ " Long.....	.58
F-117	Extension Bar, 17" Long.....	.89
F-140	Universal Joint.....	.13
MF-130	Adapter, $\frac{1}{4}$ " Sq. Female, $\frac{3}{8}$ " Sq. Male...	.06
MF-131	Adapter, $\frac{1}{4}$ " Sq. Male, $\frac{3}{8}$ " Sq. Female...	.06
FS-130	Adapter, $\frac{3}{8}$ " Sq. Female, $\frac{1}{2}$ " Sq. Male...	.13
FS-131	Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Female...	.13

**BLACK FINISH
DRIVE PARTS**
Selected Alloy Steel



Drop Forged—Flat Handle
No. FAB51 Reversible Ratchet

No. FAB51 Reversible Ratchet—Instantly reversible by moving reversing lever from left to right. Stop ball prevents accidental reversing of ratchet action during use. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Working arc is 15°. Parco Lubrite finish.



Drop Forged—Flat Handle
No. FAB50 Plug Connector Type Ratchet

No. FAB50 Plug Connector Type Ratchet—Same basic design as FAB51 except reversing is accomplished by turning ratchet over. Parco Lubrite finish.



No. FB20A Sliding T Handle



No. FB40 Flexible Hinge Handle



Nos. FMB150, FSB151 Plug Adapters



No. FB150 Plug Connector

No.	Description	Approx. Wt., Lb.
FAB51	Reversible Ratchet, 7" Long.....	.56
FAB50	Plug Connector Type Ratchet, 7" Long..	.50
FB20A	Sliding T Handle, 8" Long.....	.30
FB40	Flexible Hinge Handle, $8\frac{1}{2}$ " Long; May be Used as Exten.; Drilled for $\frac{3}{16}$ " Sliding Bar.....	.56
FMB150	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{4}$ " Sq. Male.....	.18
FSB151	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Male	.18
FB150	Plug Connector, $\frac{3}{8}$ " Sq. Male.....	.20

RATCHET REPAIR KIT

Kit No. **F-91RK** For Ratchet No. **F-91**

Contains the following parts, with instructions, in an envelope: Gear, Two springs, Shifting lever, Shifter, Two pawls (L & R hand), Face plate, Two plate screws and lock washers.


3/8"

ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Light Series—3/8" Square Drive

Set No. F-7SS

Contents

Screwdriver Socket Set—7 pieces complete with Steel Case No. C2B. Approximate weight 4 1/2 Lb.

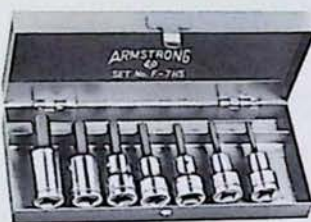
No.	Tip Size Inches	Length Inches
F-23C	1/4 x 1/32	2 5/8
F-25C	3/16 x 3/64	2 5/8
F-31C	3/8 x 1/16	2 5/8
FP-12	1 Phillips	2 1/16
FP-22	2 Phillips	2 1/16
FP-32	3 Phillips	2 1/16
FP-42	4 Phillips	2 1/16



Set No. F-7HS

Contents

Hex Driver Set—7 pieces complete with Steel Case No. C2A. Approximate weight 4 Lb.



No.	Hex Wrench Size, In.	Length In.
FA-4	1/8	2 1/16
FA-5	5/32	2 1/16
FA-6	3/16	2 1/16
FA-7	7/32	2 1/16
FA-8	1/4	2 1/16
FA-10	5/16	2 1/16
FA-12	3/8	2 1/4

Set No. F-X7

Contents

Flex Socket Set—7 pieces complete with Steel Case No. C2A. Approximate Weight 5 Lb.

No.	Nominal Opening Inches
FX-1212	3/8
FX-1214	7/16
FX-1216	1/2
FX-1218	9/16
FX-1220	5/8
FX-1222	11/16
FX-1224	3/4



Set No. F-10

Contents

Basic Set of 10 Pieces: 7 Sockets, 3 Drive Parts. Complete with Steel Case No. C-5. Approximate weight, 6 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
F-1212	3/8	F-1218	9/16
F-1214	7/16	F-1220	5/8
F-1216	1/2	F-1222	11/16
		F-1224	3/4

Drive Parts

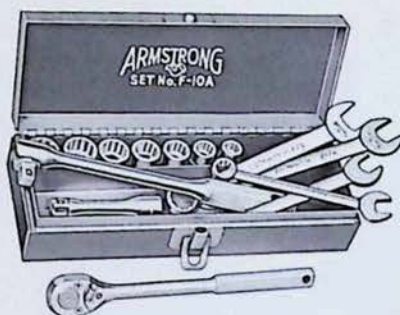
No. F-91, Rev. Ratchet, 7 1/2"
 No. F-40, Flex Handle, 8 1/2"
 No. F-103, Ext. 3"



Set No. F-10A

Contents

Basic Set No. F-10 listed below in L-H Column plus 1 No. 1104C 4-Piece Combination Wrench Set, contents listed below. Complete with Steel Case No. C-5. Approximate weight, 6 3/4 lb.



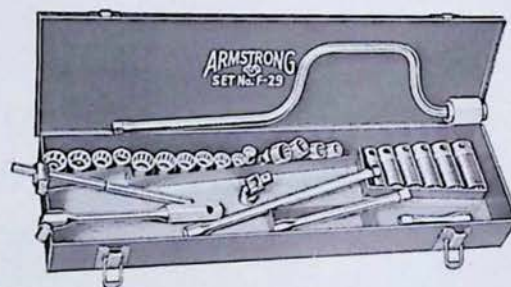
Combination Wrenches

One Each No.	Nominal Openings Inches	Length Inches
1161	1/16 & 3/16	5
1162	1/2 & 1/2	5 1/4
1163	9/16 & 5/8	5 7/8
1164	5/8 & 3/4	6 1/4

Set No. F-29

Contents

29 Pieces: 21 Sockets, 8 Drive Parts. Complete with Steel Case No. C-7. Approximate weight, 9 1/2 lb.



Sockets

One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.
F-1212	3/8	F-1224	3/4	FD-1216	1/2	F-816	1/2
F-1214	7/16	FX-1214	7/16	FD-1218	9/16	F-818	9/16
F-1216	1/2	FX-1216	1/2	FD-1220	5/8	F-820	5/8
F-1218	9/16	FX-1218	9/16	FD-1222	11/16		
F-1220	5/8	FX-1220	5/8	FD-1224	3/4		
F-1222	11/16	FD-1214	7/16	F-814	7/16		

Drive Parts

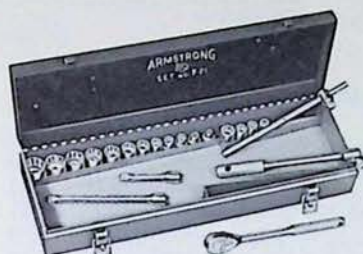
No. F-91, Rev. Ratchet, 7 1/2"
 No. F-115, Extension, 10 1/2"
 No. F-20A, Sliding T Handle, 6 1/2"
 No. F-15, Speeder, 16 1/2"
 No. F-103, Extension, 3"
 No. F-40, Flex. Handle, 8 1/2"
 No. F-110, Extension, 6"
 No. F-140, Universal Joint.



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Light Series— $\frac{3}{8}$ " Square Drive

$\frac{3}{8}$ "



Set No. F-21

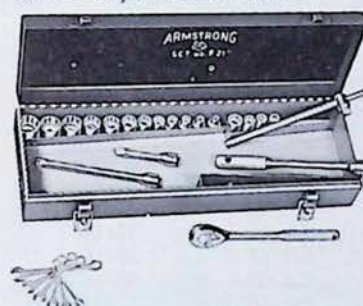
Contents

Basic set of 21 Pieces:
16 Sockets, 5 Drive Parts.
Complete with Steel Case
No. C-7. Approximate
weight, 7 lb.

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
F-1208	$\frac{1}{4}$	F-1214	$\frac{1}{16}$	F-1222	$\frac{11}{16}$	F-409	$\frac{9}{32}$
F-1210	$\frac{5}{16}$	F-1216	$\frac{1}{2}$	F-1224	$\frac{3}{4}$	F-810	$\frac{5}{16}$
F-1211	$\frac{11}{32}$	F-1218	$\frac{9}{16}$	F-1225	$\frac{25}{32}$	F-812	$\frac{3}{8}$
F-1212	$\frac{3}{8}$	F-1220	$\frac{5}{8}$	F-1226	$\frac{13}{16}$	F-814	$\frac{7}{16}$

Drive Parts

No. F-91, Reversible Ratchet, $7\frac{1}{2}$ " Long.
No. F-40, Flexible Hinge Handle, $8\frac{1}{2}$ " Long.
No. F-20A, Sliding T Handle, $6\frac{1}{2}$ " Long.
No. F-103, 3" Extension.
No. F-110, 6" Extension.



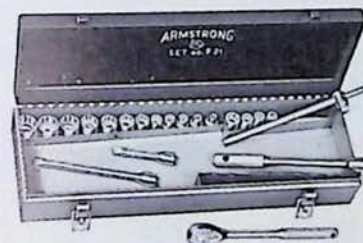
Set No. F-21A

Contents

Basic Set No. F-21 shown above, plus 1 No. 1106C 6-Piece Combination Wrench Set, contents listed below. Complete with Steel Case No. C-7. Approximate weight, 8 lb.

Combination Wrenches

No.	Nominal Openings Inches	Length Inches	No.	Nominal Openings Inches	Length Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$	1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1161	$\frac{1}{16}$ & $\frac{1}{16}$	5	1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8



Set No. F-21C

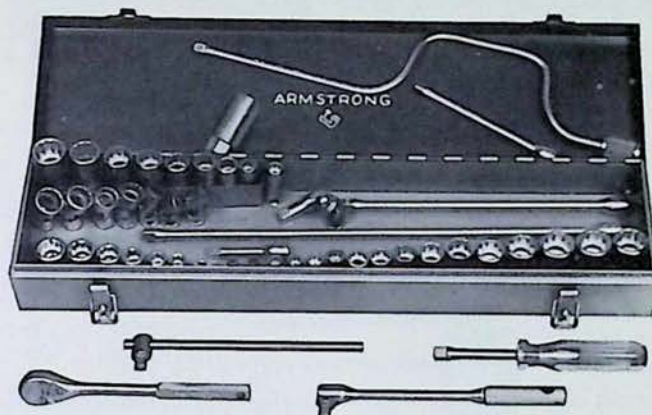
Contents

Basic Set No. F-21, shown above, plus 1 No. 1106C 6-Piece Combination Wrench Set and 1 No. 6A-26C 6-Piece Engineers' Wrench Set, contents listed below. Complete with Steel Case No. C-7. Approximate weight 10 lb.

Combination Wrenches

No.	Nominal Openings Inches	No.	Nominal Openings Inches	No.	Nominal Openings Inches	No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$	1163	$\frac{9}{16}$ & $\frac{9}{16}$	1723	$\frac{3}{8}$ & $\frac{3}{16}$	1029	$\frac{11}{16}$ & $\frac{25}{32}$
1161	$\frac{1}{16}$ & $\frac{1}{16}$	1164	$\frac{5}{8}$ & $\frac{5}{8}$	1025	$\frac{1}{2}$ & $\frac{19}{32}$	1731-A	$\frac{3}{4}$ & $\frac{7}{8}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$	1166	$\frac{3}{4}$ & $\frac{3}{4}$	1727	$\frac{9}{16}$ & $\frac{5}{8}$	1033-C	$\frac{15}{16}$ & 1

Engineers' Wrenches



Set No. F-51

Master Socket Set—51 pieces, 40 sockets, 11 Drive Parts.
Complete with Steel Case No. C35. Approximate weight 32 Lb.

Contents

No.	Nominal Opening Inches	No.	Nominal Opening Inches	No.	Nominal Opening Inches
F-1208	$\frac{1}{4}$	F-409	$\frac{9}{32}$	FD-1216	$\frac{1}{2}$
F-1210	$\frac{5}{16}$	F-810	$\frac{5}{16}$	FD-1218	$\frac{9}{16}$
F-1211	$\frac{11}{32}$	F-812	$\frac{3}{8}$	FD-1220	$\frac{5}{8}$
F-1212	$\frac{3}{8}$	F-814	$\frac{7}{16}$	FD-1222	$\frac{11}{16}$
F-1214	$\frac{7}{16}$	F-816	$\frac{1}{2}$	FD-1224	$\frac{3}{4}$
F-1216	$\frac{1}{2}$	F-818	$\frac{9}{16}$	FD-1226	$\frac{13}{16}$
F-1218	$\frac{5}{8}$	F-820	$\frac{5}{8}$	FD-1228	$\frac{7}{8}$
F-1219	$\frac{19}{32}$	FX-1212	$\frac{3}{8}$	FD-626R	$\frac{13}{16}$
F-1220	$\frac{5}{8}$	FX-1214	$\frac{7}{16}$		
F-1222	$\frac{11}{16}$	FX-1216	$\frac{1}{2}$		
F-1224	$\frac{3}{4}$	FX-1218	$\frac{9}{16}$		
F-1225	$\frac{25}{32}$	FX-1220	$\frac{5}{8}$		
F-1226	$\frac{13}{16}$	FX-1222	$\frac{11}{16}$		
F-1228	$\frac{7}{8}$	FX-1224	$\frac{3}{4}$		
F-1230	$\frac{15}{16}$	FD-1212	$\frac{3}{8}$		
F-1232	1	FD-1214	$\frac{7}{16}$		

Drive Parts

No. F-15, Speeder, $16\frac{1}{2}$ " Long.
No. F-20A, Sliding T Handle, $6\frac{1}{2}$ " Long.
No. F-40, Flex. Hinge Handle, $8\frac{1}{2}$ " Long.
No. F-91, Reversible Ratchet, 7" Long.
No. F-102, Extension $1\frac{3}{4}$ " Long.
No. F-103, Extension. 3" Long.
No. F-106, Plastic Handle, Socket Drive, 6" Long.
No. F-110, Extension, 6" Long.
No. F-115, Extension, $10\frac{1}{2}$ " Long.
No. F-117, Extension Bar, 17" Long.
No. F-140, Universal Joint.



1/2"

ARMSTRONG ARMALLOY SOCKET WRENCHES

Standard Series—1/2" Square Drive

Selected Alloy Steel

Gauged to accurate limits. Heat treated and tested to assure maximum strength. Thin head walls enable these sockets to operate with a sure grip in close or obstructed places. In close quarters, the double hexagon opening rotates the nut when the working arc is limited to 30°. Extra Deep Sockets are particularly useful for work on spark plugs, body bolts, U bolts and for service wherever the bolt extends beyond the nut further than usual.

Chrome Plated SOCKETS



12-Point
Opening

Nominal Opening Inches	No.	Approx. Weight Lb.
3/8	ST-1212	.13
7/16	ST-1214	.13
1/2	ST-1216	.13
9/16	ST-1218	.13
19/32	ST-1219	.13
5/8	ST-1220	.19
21/32	ST-1221	.14
11/16	ST-1222	.19
3/4	ST-1224	.19
25/32	ST-1225	.25
13/16	ST-1226	.25
7/8	ST-1228	.25
15/16	ST-1230	.31
31/32	ST-1231	.31
1	ST-1232	.31
1 1/16	ST-1234	.38
1 1/8	ST-1236	.38
1 1/16	ST-1238	.44
1 1/4	ST-1240	.50
1 1/2	ST-1242	.59
1 3/8	ST-1244	.75
1 7/8	ST-1246	.84
1 15/16	ST-1248	.93



6-Point
Opening

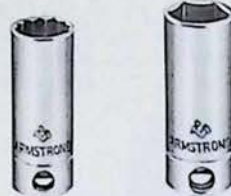
Nominal Opening Inches	No.	Approx. Weight Lb.
3/8	ST-612	.13
7/16	ST-614	.13
1/2	ST-616	.13
9/16	ST-618	.13
5/8	ST-620	.19
21/32	ST-621	.14
11/16	ST-622	.19
3/4	ST-624	.19
13/16	ST-626	.25
7/8	ST-628	.25
15/16	ST-630	.31
1	ST-632	.31



8-Point
Opening

Nominal Opening Inches	No.	Approx. Weight Lb.
5/16	S-810	.13
3/8	S-812	.13
7/16	S-814	.19
1/2	S-816	.25
9/16	S-818	.25
5/8	S-820	.38
11/16	S-822	.38
3/4	S-824	.44
13/16	S-826	.46
7/8	S-828	.50
1	S-832	.56

Chrome Plated SOCKETS



Extra Deep
12-Point
Opening

Special Spark
Plug Socket
With Rubber
Insert
*No. SD-626R

For 1/2" Sq. Drive Extra Deep Power Drive Sockets see page 90.



Flex Socket



Hex Drivers



PHILLIPS
SCREW DRIVERS



STANDARD
SCREW DRIVERS



Open End Crowfoot

Nominal Opening Inches	No.	Approx. Weight Lb.
1/2	SD-1216	.27
9/16	SD-1218	.26
5/8	SD-1220	.26
11/16	SD-1222	.26
3/4	SD-1224	.37
13/16	SD-1226	.37
15/16	*SD-626R	.39
7/8	SD-1228	.45
15/16	†SD-1228T	.45
1	SD-1230	.51
1 1/16	SD-1232	.52
1 1/8	SD-1234	.63
1 1/16	SD-1236	.74

†No. SD-1228T Extra thin wall not guaranteed.

Nominal Opening Inches	No.	Approx. Weight Lb.
1/2	SX-1216	.24
9/16	SX-1218	.25
5/8	SX-1220	.26
11/16	SX-1222	.27
3/4	SX-1224	.29

Hex Wrench Size, In.	Complete Tool		Bit Only	
	No.	Length In.	No.	Length In.
1/4	SA-8	27/16	B-8	19/16
5/16	SA-10	27/16	B-10	19/16
3/8	SA-12	27/16	B-12	19/16
1/2	SA-16	3 1/16	B-16	2 1/8
9/16	SA-18	3 3/16	B-18	2 7/32
5/8	SA-20	3 3/16	B-20	2 7/32

Phillips Bit Size	No.	Lgth. In.	Approx. Wt., Lb.
1	SP-12	2 5/16	.04
2	SP-22	2 5/16	.05
3	SP-32	2 5/16	.06
4	SP-42	2 5/16	.08

Tip Size Inches	No.	Length Inches	Approx. Wt., Lb.
1/4x1/32	S-23C	2 7/8	.07
5/16x3/64	S-25C	2 7/8	.08
3/8x1/16	S-31C	2 7/8	.10



Box Type Crowfoot

Nominal Opening Inches	No.	Length Overall Inches	Approx. Weight Lb.
15/16	SO-130	2 13/16	.37
1	SO-132	2 13/16	.36
1 1/16	SO-134	2 29/32	.47
1 1/8	SO-136	2 29/32	.44
1 1/4	SO-140	2 31/32	.47
1 3/8	SO-144	3 19/64	.56
1 7/8	SO-146	3 3/8	.69
1 1/2	SO-148	3 3/8	.66
1 5/8	SO-152	3 17/32	.74
1 3/4	SO-156	3 7/8	.91
1 13/16	SO-158	3 7/8	.87

Nominal Opening Inches	No.	Length Overall Inches	Approx. Weight Lb.
1 1/8	SB-136	2 1/8	.21
1 1/4	SB-140	2 5/16	.23
1 5/8	SB-142	2 5/16	.23
1 3/4	SB-144	2 3/4	.28
1 7/8	SB-146	2 1/2	.30
1 1/2	SB-148	2 1/2	.26
1 5/8	SB-152	2 5/8	.34
1 11/16	SB-154	2 3/4	.41
1 3/4	SB-156	2 7/8	.40



ARMSTRONG ARMALLOY SOCKET WRENCHES

Standard Series— $\frac{1}{2}$ " Square Drive

$\frac{1}{2}$ "

**Chrome Plated
DRIVE PARTS**
Selected Alloy Steel



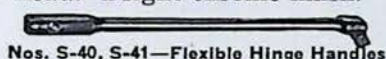
No. S-91 Reversible Ratchet—Round Handle



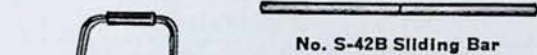
No. S-92 Reversible Ratchet—Long Round Handle

Nos. S-91 and S-92 (Long Handle)

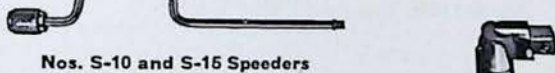
Reversible Ratchets:—Stop ball prevents accidental reversing of ratchet action during use. Construction features facilitate use in close quarters. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Internal mechanism is of tested and proven design. Fine tooth—narrow head. Bright chrome finish.



Nos. S-40, S-41—Flexible Hinge Handles



No. S-42B Sliding Bar



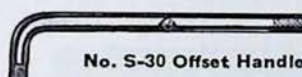
Nos. S-10 and S-15 Speeders



No. S-20A Sliding T Handle



No. S-140 Universal Joint



No. S-30 Offset Handle



Nos. S-102P, S-110P, S-115P, S-121P Extensions



Nos. SB-30, SB-40 Screw Drivers

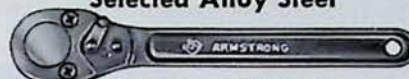


Nos. FS-130, SH-130 Adapters

No.	Description	Approx. Wt., Lb.
S-91	Reversible Ratchet, $10\frac{1}{2}$ " Long.....	1.50
S-92	Reversible Ratchet, 15" Long.....	3.20
S-10	Speeder with Knurled Spin Grip, $14\frac{1}{2}$ " Long	1.75
S-15	Speeder with Knurled Spin Grip, 19" Long..	2.00
S-20A	Sliding T Handle, 11" Long.....	1.00
S-30	Offset Handle, 12" Long.....	.88
*S-40	Flexible Hinge Handle, 12" Long.....	1.50
*S-41	Flexible Hinge Handle, 17" Long.....	2.00
S-42B	Sliding Bar, $\frac{3}{16}$ " Diam. x 9" Long.....	.35
S-102P	Extension, $2\frac{1}{2}$ " Long.....	.35
S-110P	Extension, $5\frac{1}{4}$ " Long.....	.88
S-115P	Extension, $10\frac{1}{2}$ " Long.....	1.25
S-121P	Extension, 20" Long.....	2.14
S-140	Universal Joint.....	.25
SB-30	Screwdriver, Blade $\frac{1}{4}$ " x $1\frac{1}{2}$ ".....	.14
SB-40	Screwdriver, Blade $\frac{3}{8}$ " x $1\frac{1}{4}$ ".....	.16
FS-130	Adapter, $\frac{3}{8}$ " Sq. Female, $\frac{1}{2}$ " Sq. Male....	.13
FS-131	Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Female....	.13
SH-130	Adapter, $\frac{1}{2}$ " Sq. Female, $\frac{3}{4}$ " Sq. Male....	.25
SH-131	Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Female....	.25

*May be used as an Extension; Knurled Handle has $\frac{7}{16}$ " diameter cross hole for bar.

**BLACK FINISH
DRIVE PARTS**
Selected Alloy Steel



Drop Forged—Flat Handle
No. SAB51 Reversible Ratchet

No. SAB51 Reversible Ratchet—Instantly reversible by moving reversing lever from left to right. Parco lubrite finish.



Drop Forged—Flat Handle
No. SAB50 Plug Connector Type Ratchet

No. SAB50 Plug Connector Type Ratchet—Same basic design as SAB51 except reversing is accomplished by turning ratchet over. Parco lubrite finish.



No. SA55 Reversible Ratchet—Tapered Handle

No. SA55 Ratchet Spud Wrench combines Armstrong reversible ratchet features with structural wrench. Tapered "Spud" end designed for aligning bolt or rivet holes of various diameters. Well suited for riggers, or iron and steel workers. Red enamel finish.



No. FSB151 Plug Adapter



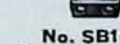
SB41 Flexible Hinge Handle



No. SB20A Sliding T Handle



No. SB150 Plug Connector



No. SB150 Plug Connector

No.	Description	Approx. Wt., Lb.
SAB51	Reversible Ratchet, $10\frac{1}{2}$ " Long.....	1.25
SAB50	Plug Connector Type Ratchet, $10\frac{1}{2}$ " Long..	1.13
SA55	Reversible Ratchet Speed Wrench, 14" long..	1.90
SB20A	Sliding T Handle, 11" Long.....	1.00
*SB41	Flexible Hinge Handle, 17" Long.....	2.00
FSB151	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Male..	.18
SB150	Plug Connector, $\frac{1}{2}$ ".....	.25
SHB151	Plug adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Male...	.30

*May be used as an Extension; Knurled Handle has $\frac{7}{16}$ " diameter cross hole for bar.

**BLACK FINISH
SOCKETS**



12-Point Opening

Nominal Open., In.	No.	Approx. Wt., Lb.
$\frac{1}{16}$	STB1214	.13
$\frac{1}{8}$	STB1216	.13
$\frac{3}{16}$	STB1218	.13
$\frac{1}{4}$	STB1220	.19
$\frac{5}{16}$	STB1222	.19
$\frac{3}{8}$	STB1224	.19
$\frac{7}{16}$	STB1226	.25
$\frac{1}{2}$	STB1228	.25
$\frac{9}{16}$	STB1230	.31

RATCHET REPAIR KIT

Kit No. S-9192-RK For Ratchet No. S-91 & S-92

Contains the following parts, with instructions, in an envelope: Gear, Two springs, Shifting lever, Shifter, Two pawls (L & R hand), Face plate, Two plate screws and lock washers.



1/2"

ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard Series—1/2" Square Drive

Set No. S-X5

Contents

Flex Socket Set—5 pieces complete with Steel Case No. C2A. Approximate Weight 5 Lb.

One Each No.	Nominal Opening Inches
SX-1216	1/2
SX-1218	9/16
SX-1220	5/8
SX-1222	11/16
SX-1224	3/4



Set No. S-6HS

Contents

Hex Driver Set—6 pieces complete with Steel Case No. C2B, approximate weight 4 1/2 lb.



No.	Hex Wrench Size, In.	Length, In.
SA-8	1/4	27/16
SA-10	5/16	27/16
SA-12	3/8	27/16
SA-16	1/2	31/16
SA-18	9/16	33/16
SA-20	5/8	33/16

Set No. S-7SS

Contents

Screwdriver Socket Set—7 pieces complete with Steel Case No. C2B. Approximate weight 4 1/2 Lb.

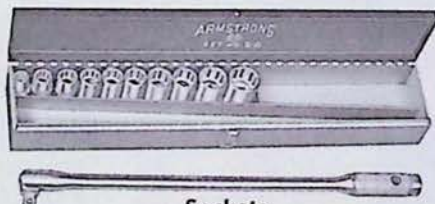
No.	Tip Size, Inches	Length, Inches
S-23C	1/4 x 1/2	27/8
S-25C	5/16 x 3/4	27/8
S-31C	3/8 x 1/2	27/8
SP-12	1 Phillips	25/16
SP-22	2 Phillips	25/16
SP-32	3 Phillips	25/16
SP-42	4 Phillips	25/16



Set No. S-11

Contents

11 Pieces: 10 Sockets, 1 Drive Part.
Complete with Steel Case No. C-13. Approximate weight, 5 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	7/16	ST-1219	19/32	ST-1224	3/4	ST-1232	1
ST-1216	1/2	ST-1220	5/8	ST-1225	25/32		
ST-1218	9/16	ST-1222	11/16	ST-1228	7/8		

Drive Parts

No. S-41, Flexible Hinge Handle, 17" Long.

Set No. S-12

Contents

12 Pieces: 10 Sockets, 2 Drive Parts.
Complete with Steel Case No. C-13. Approximate weight, 5.38 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	7/16	ST-1222	11/16
ST-1216	1/2	ST-1224	3/4
ST-1218	9/16	ST-1225	25/32
ST-1219	19/32	ST-1228	7/8
ST-1220	5/8	ST-1232	1

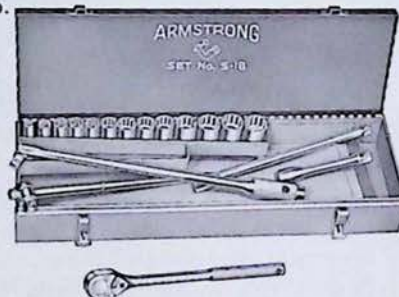
Drive Parts

No. S-91, Reversible Ratchet, 10 1/2" Long.
No. S-110P, Extension, 5 1/4" Long.

Set No. S-18

Contents

18 Pieces: 13 Sockets, 5 Drive Parts.
Complete with Steel Case No. C-17. Approximate weight, 20 3/4 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	7/16	ST-1225	25/32
ST-1216	1/2	ST-1226	13/16
ST-1218	9/16	ST-1228	7/8
ST-1219	19/32	ST-1230	15/16
ST-1220	5/8	ST-1231	31/32
ST-1222	11/16	ST-1232	1
ST-1224	3/4		

Drive Parts

No. S-91, Reversible Ratchet, 10 1/2" Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-110P, Extension, 5 1/4" Long.
No. S-115P, Extension, 10 1/2" Long.



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

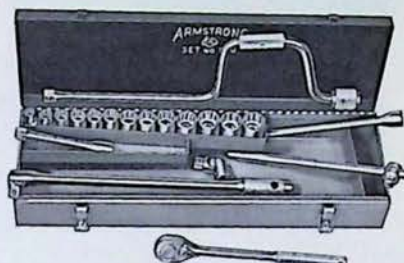
Standard Series— $\frac{1}{2}$ " Square Drive

$\frac{1}{2}$ "

Set No. S-20

Contents

20 Pieces: 13 Sockets, 7 Drive Parts.
Complete with Steel Case No. C-17. Approximate weight, 23 lb.



Sockets

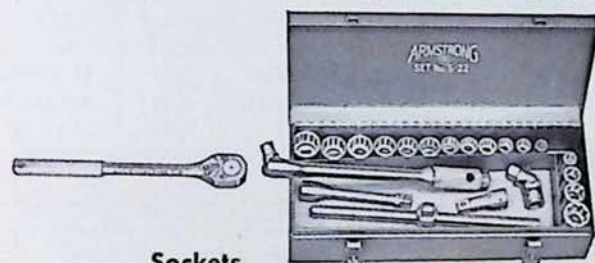
One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{1}{16}$	ST-1225	$\frac{25}{32}$
ST-1216	$\frac{1}{8}$	ST-1226	$\frac{13}{16}$
ST-1218	$\frac{9}{16}$	ST-1228	$\frac{7}{8}$
ST-1219	$\frac{19}{32}$	ST-1230	$\frac{15}{16}$
ST-1220	$\frac{5}{8}$	ST-1231	$\frac{31}{32}$
ST-1222	$\frac{11}{16}$	ST-1232	1
ST-1224	$\frac{3}{4}$		

Drive Parts

No. S-91, Reversible Ratchet, $10\frac{1}{2}$ " Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-15, Speeder, 19" Long.
No. S-110P, Extension, $5\frac{1}{4}$ " Long.
No. S-115P, Extension, $10\frac{1}{2}$ " Long.
No. S-140, Universal Joint.

No. S-22 Contents

Basic Set of 22 Pieces: 16 Sockets, 6 Drive Parts. Complete with Steel Case No. C-15. Approximate weight, 11.5 lb.



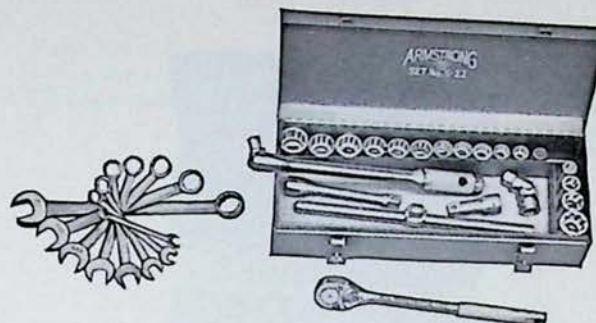
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{1}{16}$	ST-1220	$\frac{5}{8}$	ST-1226	$\frac{13}{16}$	S-812	$\frac{3}{8}$
ST-1216	$\frac{1}{8}$	ST-1222	$\frac{11}{16}$	ST-1228	$\frac{7}{8}$	S-816	$\frac{1}{2}$
ST-1218	$\frac{9}{16}$	ST-1224	$\frac{3}{4}$	ST-1230	$\frac{15}{16}$	S-820	$\frac{5}{8}$
ST-1219	$\frac{19}{32}$	ST-1225	$\frac{25}{32}$	ST-1232	1	S-824	$\frac{3}{4}$

Drive Parts

No. S-91, Reversible Ratchet, $10\frac{1}{2}$ " Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-40, Flexible Hinge Handle, 12" Long.
No. S-102P, Extension, $2\frac{1}{2}$ " Long.
No. S-110P, Extension, $5\frac{1}{4}$ " Long.
No. S-140, Universal Joint.

Set No. S-22A



Contents

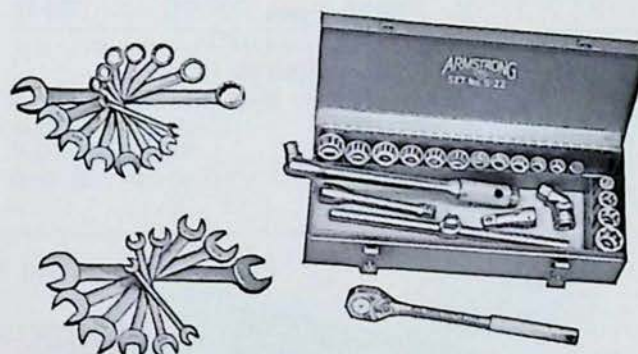
Basic Set No. S-22, shown in left-hand column below, plus 1 No. 1108C, 8-Piece Combination Wrench Set, contents listed below.

Complete with Steel Case No. C-15.
Approximate weight, 12.6 lb.

Combination Wrenches

One Each No.	Nominal Openings Inches	One Each No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$	1164	$\frac{5}{8}$ & $\frac{5}{8}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	1165	$\frac{11}{16}$ & $\frac{11}{16}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$	1166	$\frac{3}{4}$ & $\frac{3}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	1167	$\frac{7}{8}$ & $\frac{7}{8}$

Set No. S-22C



Contents

Basic Set No. S-22, shown in adjacent column, plus 1 No. 1108C, 8-Piece Combination Wrench Set and 1 No. 6A-26C, 6-Piece Engineers' Wrench Set, contents listed below.

Complete with Steel Case No. C-15. Approx. weight, 14.6 lb.

Combination Wrenches

Engineers' Wrenches

One Each No.	Nominal Openings Inches	One Each No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$	1723	$\frac{3}{8}$ & $\frac{1}{16}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	1025	$\frac{1}{2}$ & $\frac{19}{32}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$	1727	$\frac{9}{16}$ & $\frac{5}{8}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	1029	$\frac{11}{16}$ & $\frac{25}{32}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	1731-A	$\frac{3}{4}$ & $\frac{7}{8}$
1165	$\frac{11}{16}$ & $\frac{11}{16}$	1033-C	$\frac{15}{16}$ & 1
1166	$\frac{3}{4}$ & $\frac{3}{4}$	.....	.....
1167	$\frac{7}{8}$ & $\frac{7}{8}$	.....	.....

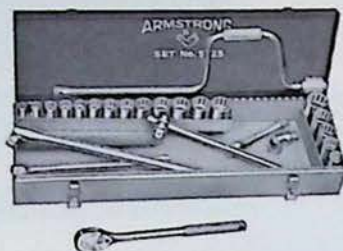


1/2"

ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard Series—1/2" Square Drive

Set No. S-25



Contents

25 Pieces: 18 Sockets, 7 Drive Parts.
Complete with Steel Case No. C-17. Approximate weight, 25 1/2 lb.

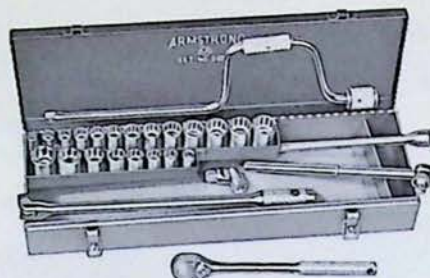
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	1/16	ST-1228	7/8
ST-1216	1/8	ST-1230	15/16
ST-1218	9/16	ST-1231	31/32
ST-1219	19/32	ST-1232	1
ST-1220	5/8	SD-1222	11/16
ST-1222	11/16	SD-1226	13/16
ST-1224	3/4	SD-1228	7/8
ST-1225	25/32	SD-1230	15/16
ST-1226	13/16	SD-1236	1 1/8

Drive Parts

No. S-91, Reversible Ratchet, 10 1/2".
No. S-41, Flexible Hinge Handle, 17".
No. S-20A, Sliding T Handle, 11".
No. S-15, Speeder, 19".
No. S-110P, Extension, 5 1/4".
No. S-115P, Extension, 10 1/2".
No. S-140, Universal Joint.

Set No. S-28



Contents

28 Pieces: 21 Sockets, 7 Drive Parts.
Complete with Steel Case No. C-17. Approximate weight, 25 1/2 lb.

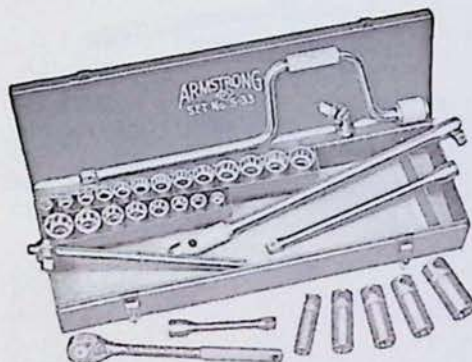
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	1/16	ST-1231	31/32
ST-1216	1/8	ST-1232	1
ST-1218	9/16	S-812	3/8
ST-1219	19/32	S-814	7/16
ST-1220	5/8	S-816	1/2
ST-1222	11/16	S-818	9/16
ST-1224	3/4	S-820	5/8
ST-1225	25/32	S-822	11/16
ST-1226	13/16	S-824	3/4
ST-1228	7/8	S-828	7/8
ST-1230	15/16	...	...

Drive Parts

No. S-91, Reversible Ratchet, 10 1/2".
No. S-41, Flexible Hinge Handle, 17".
No. S-20A, Sliding T Handle, 11".
No. S-15, Speeder, 19".
No. S-110P, Extension, 5 1/4".
No. S-115P, Extension, 10 1/2".
No. S-140, Universal Joint.

Set No. S-33



Contents

33 Pieces: 26 Sockets, 7 Drive Parts.
Complete with Steel Case No. C-17.
Approximate weight, 27 1/4 lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	1/16	ST-1228	7/8	S-822	11/16
ST-1216	1/8	ST-1230	15/16	S-824	3/4
ST-1218	9/16	ST-1231	31/32	S-828	7/8
ST-1219	19/32	ST-1232	1	SD-1222	11/16
ST-1220	5/8	S-812	3/8	SD-1226	13/16
ST-1222	11/16	S-814	7/16	SD-1228	7/8
ST-1224	3/4	S-816	1/2	SD-1230	15/16
ST-1225	25/32	S-818	9/16	SD-1236	1 1/8
ST-1226	13/16	S-820	5/8	.....	...

Drive Parts

No. S-91, Reversible Ratchet, 10 1/2" Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-15, Speeder, 19" Long.
No. S-110P, Extension, 5 1/4" Long.
No. S-115P, Extension, 10 1/2" Long.
No. S-140, Universal Joint.

See page 81 for dimensions of steel cases



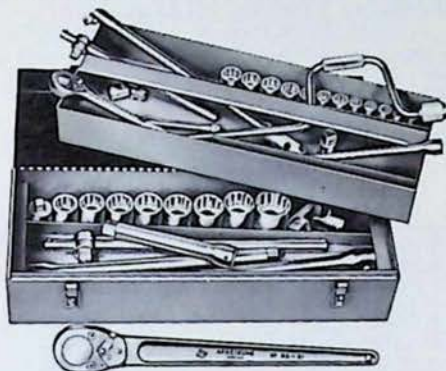
ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard and Heavy Duty Series

Set No. S-H-36

Contents

Basic Set of 36 Pieces: 21 Sockets, 15 Drive Parts.
Complete with Steel Case No. C-29 and Tote Tray No. CT-5. Approximate weight, 43.5 lb.



Standard Series— $\frac{1}{2}$ " Square Drive

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{1}{16}$	ST-1220	$\frac{5}{8}$	ST-1226	$1\frac{1}{16}$	ST-1232	1
ST-1216	$\frac{1}{8}$	ST-1222	$1\frac{1}{16}$	ST-1228	$\frac{7}{8}$	.....	...
ST-1218	$\frac{9}{16}$	ST-1224	$\frac{3}{4}$	ST-1230	$1\frac{1}{16}$	.....	...
ST-1219	$1\frac{1}{32}$	ST-1225	$2\frac{1}{32}$	ST-1231	$2\frac{1}{32}$	.....	...

Drive Parts

No. S-91, Rev. Ratchet, $10\frac{1}{2}$ ".
No. S-41, Flex Handle, 17".
No. S-15, Speeder, 19".
No. S-20A, Sliding Tee, 11".
No. S-140, Univ. Joint.
No. S-110P, Ext., $5\frac{1}{4}$ ".
No. S-115P, Ext., $10\frac{1}{2}$ ".
No. SH-130, Adpt., $\frac{1}{2}$ " F., $\frac{3}{4}$ " M.

Heavy Duty Series— $\frac{3}{4}$ " Square Drive

Sockets

One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.
H-1234	$1\frac{1}{16}$	H-1242	$1\frac{1}{8}$	H-1248	$1\frac{1}{2}$
H-1236	$1\frac{1}{8}$	H-1244	$1\frac{3}{8}$	H-1252	$1\frac{5}{8}$
H-1240	$1\frac{1}{4}$	H-1246	$1\frac{1}{16}$	.....	...

Drive Parts

No. HA-51, Reversible Ratchet, 19" Long.
No. H-20A, Sliding T Handle, $17\frac{1}{2}$ " Long.
No. H-41, Flexible Hinge Handle, 22" Long.
No. H-110, Extension, 8" Long.
No. H-115, Extension, $15\frac{1}{2}$ " Long.
No. H-140, Universal Joint.
No. SH-131, Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Female.

Set No. S-H-36C

Contents

57 Pieces: 21 Sockets, 15 Drive Parts, as listed in Set No. S-H-36, plus 1 No. 9A-38C 9-Piece Engineers' Wrench Set and 1 No. 1112C 12-Piece Combination Wrench Set, illustrated and listed.

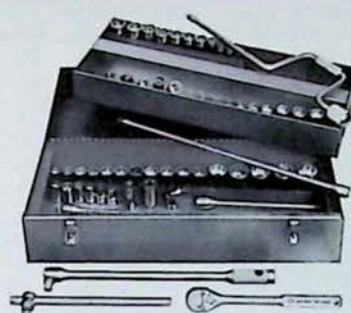
Complete in Steel Case No. C-29 and Tote Tray No. CT-5. Approximate weight, 58 $\frac{1}{2}$ lb.

Standard Series— $\frac{1}{2}$ " Square Drive

Set No. S-59

Contents

Basic Set of 59 Pieces: 50 Sockets, 9 Drive Parts.
Complete with Steel Case No. C-29 and Tote Tray No. CT-5. Approximate weight, 54.5 lb.



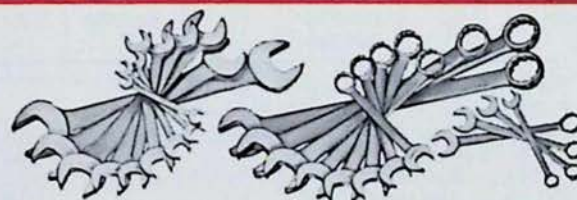
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1212	$\frac{3}{8}$	ST-1232	1	SD-1224	$\frac{3}{4}$	S-810	$\frac{5}{16}$
ST-1214	$\frac{7}{16}$	ST-1234	$1\frac{1}{16}$	SD-1226	$1\frac{1}{16}$	S-812	$\frac{3}{8}$
ST-1216	$\frac{1}{2}$	ST-1236	$1\frac{1}{8}$	*SD-626R	$1\frac{1}{8}$	S-814	$\frac{7}{16}$
ST-1218	$\frac{9}{16}$	ST-1238	$1\frac{1}{4}$	SD-1228	$\frac{7}{8}$	S-816	$\frac{1}{2}$
ST-1219	$1\frac{1}{32}$	ST-1240	$1\frac{1}{2}$	SD-1230	$1\frac{1}{16}$	S-818	$\frac{9}{16}$
ST-1220	$\frac{5}{8}$	ST-1242	$1\frac{5}{8}$	SD-1232	1	S-820	$\frac{5}{8}$
ST-1222	$1\frac{1}{16}$	ST-1244	$1\frac{3}{8}$	SD-1234	$1\frac{1}{8}$	S-822	$1\frac{1}{16}$
ST-1224	$\frac{3}{4}$	ST-1246	$1\frac{7}{8}$	SD-1236	$1\frac{1}{4}$	S-824	$\frac{3}{4}$
ST-1225	$2\frac{1}{32}$	ST-1248	$1\frac{1}{2}$	SX-1216	$\frac{1}{2}$	S-826	$1\frac{1}{16}$
ST-1226	$1\frac{1}{8}$	SD-1216	$\frac{1}{2}$	SX-1218	$\frac{9}{16}$	S-828	$\frac{7}{8}$
ST-1228	$\frac{7}{8}$	SD-1218	$\frac{9}{16}$	SX-1220	$\frac{5}{8}$	S-832	1
ST-1230	$1\frac{1}{16}$	SD-1220	$\frac{5}{8}$	SX-1222	$1\frac{1}{16}$	.....	...
ST-1231	$2\frac{1}{32}$	SD-1222	$1\frac{1}{8}$	SX-1224	$\frac{3}{4}$	.....	...

*Spark Plug Socket

Drive Parts

S-91 Rev. Ratchet, $10\frac{1}{2}$ "
S-20A Sliding Tee, 11"
S-15 Speeder, 19"
S-41 Flex Handle, 17"
S-102P Extension, $2\frac{1}{2}$ "
S-110P Extension, $5\frac{1}{4}$ "
S-115P Extension, $10\frac{1}{2}$ "
S-121P Extension, 20"
S-140 Universal Joint



Engineers' Wrenches

Combination Wrenches

One Each No.	Nom. Open. Inches	Lgth. In.	One Each No.	Nom. Open. Inches	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$	1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$
1025	$\frac{1}{2}$ & $1\frac{1}{32}$	$6\frac{1}{8}$	1161	$\frac{1}{16}$ & $\frac{1}{16}$	5
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$	1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1029	$1\frac{1}{16}$ & $2\frac{1}{32}$	$8\frac{1}{2}$	1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	1163-A	$1\frac{1}{32}$ & $1\frac{1}{32}$	$5\frac{7}{8}$
1033-C	$1\frac{1}{16}$ & 1	$10\frac{7}{8}$	1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1037	$1\frac{1}{16}$ & $1\frac{1}{4}$	$12\frac{3}{4}$	1165	$1\frac{1}{16}$ & $1\frac{1}{16}$	$7\frac{1}{8}$
1037-A	$1\frac{1}{8}$ & $1\frac{1}{16}$	$12\frac{3}{4}$	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1041	$1\frac{1}{16}$ & $1\frac{1}{8}$	$15\frac{1}{4}$	1166-A	$2\frac{1}{32}$ & $2\frac{1}{32}$	8
.....	.....	.....	1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$
.....	.....	.....	1168-L	$1\frac{1}{16}$ & $1\frac{1}{16}$	$13\frac{1}{8}$
.....	.....	.....	1170-L	1 & 1	$13\frac{1}{8}$



ARMSTRONG ARMALLOY SOCKET WRENCH SET

MASTER MECHANICS' SET NO. NM-H-106—COMPLETE ASSORTMENT

A carefully selected assortment of $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " Square Drive ARMSTRONG Armalloy Sockets and Drive Parts together with Engineers' Wrenches, Combination Wrenches, Box Socket Wrenches and Pliers. Included are all required openings from $\frac{3}{16}$ to $1\frac{5}{8}$ ".

Contents

106 Pieces: 44 Sockets, 30 Drive Parts, 30 Wrenches, 2 Pliers. Complete in Steel Case No. C-31 with Tote Tray No. CT-5 and Steel Case No. C-1. Approx. weight, 85 lb.



$\frac{1}{4}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
NM-606	$\frac{3}{16}$	NM-609	$\frac{9}{32}$	NM-1212	$\frac{3}{8}$
NM-607	$\frac{1}{8}$	NM-1210	$\frac{5}{16}$	NM-1214	$\frac{7}{16}$
NM-608	$\frac{1}{4}$	NM-1211	$\frac{11}{32}$	.....	..

NM-91, Reversible Ratchet, $4\frac{3}{4}$ " Long.
 NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
 NM-106, Shock-Proof Handle, 6" Long.
 NM-140, Universal Joint.
 C-1, Steel Case

$\frac{3}{8}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
F-1212	$\frac{3}{8}$	F-1216	$\frac{1}{2}$	F-1222	$1\frac{1}{16}$
F-1214	$\frac{7}{16}$	F-1218	$\frac{9}{16}$	F-1224	$\frac{3}{4}$
.....	..	F-1220	$\frac{5}{8}$	.....	..

F-91, Reversible Ratchet, $7\frac{1}{2}$ " Long.
 F-20A, Sliding T Handle, $6\frac{1}{2}$ " Long.
 F-40, Flexible Hinge Handle, $8\frac{1}{2}$ " Long.
 F-15, Speeder, $16\frac{1}{2}$ " Long.
 F-103, 3" Extension.
 F-110, 6" Extension.
 F-115, $10\frac{1}{2}$ " Extension.
 F-140, Universal Joint.
 FP-22, Phillips Screw Driver Attachment No. 2 Drive Fits No. 5-9 Screws.
 FP-32, Phillips Screw Driver Attachment No. 3 Drive Fits No. 10-16 Screws.

$\frac{1}{2}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
ST-1214	$\frac{1}{2}$	ST-1225	$2\frac{3}{4}$	SD-1226	$1\frac{3}{16}$
ST-1216	$\frac{5}{8}$	ST-1226	$\frac{13}{16}$	SD-1228	$\frac{7}{8}$
ST-1218	$\frac{9}{16}$	ST-1228	$\frac{7}{8}$	SD-1232	1
ST-1219	$\frac{19}{32}$	ST-1230	$\frac{15}{16}$	S-814	$\frac{7}{16}$
ST-1220	$\frac{5}{8}$	ST-1231	$\frac{31}{32}$	S-816	$\frac{1}{2}$
ST-1222	$\frac{11}{16}$	ST-1232	1	S-818	$\frac{9}{16}$
ST-1224	$\frac{3}{4}$	SD-1222	$1\frac{1}{16}$	S-820	$\frac{5}{8}$

$\frac{1}{2}$ " Square Drive

S-91, Reversible Ratchet, $10\frac{1}{2}$ " Long.
 S-20A, Sliding T Handle, 11" Long.
 S-41, Flexible Hinge Handle, 17" Long.
 S-15, Speeder, 19" Long.
 S-102P, $2\frac{1}{2}$ " Extension.
 S-110P, $5\frac{1}{4}$ " Extension.
 S-115P, $10\frac{1}{2}$ " Extension.
 S-140, Universal Joint.

$\frac{3}{4}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
H-1234	$1\frac{1}{16}$	H-1242	$1\frac{5}{16}$	H-1248	$1\frac{1}{2}$
H-1236	$1\frac{1}{8}$	H-1244	$1\frac{3}{8}$	H-1252	$1\frac{5}{8}$
H-1240	$1\frac{1}{4}$	H-1246	$1\frac{7}{16}$	.....	...

HA-51, Reversible Ratchet, 19" Long.
 H-20A, Sliding T Handle, $17\frac{1}{2}$ " Long.
 H-41, Flexible Hinge Handle, 22" Long.
 H-104, 4" Extension.
 H-110, 8" Extension.
 H-115, $15\frac{1}{2}$ " Extension.
 H-140, Universal Joint.

Armstrong Double Head Engineers' Wrenches

One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$	1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$	1037	$\frac{1}{16}$ & $1\frac{1}{4}$	$12\frac{3}{4}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$	1037-A	$\frac{1}{8}$ & $1\frac{5}{16}$	$12\frac{3}{4}$
1029	$\frac{11}{16}$ & $2\frac{5}{32}$	$8\frac{1}{2}$	1041	$\frac{1}{16}$ & $1\frac{5}{8}$	$15\frac{3}{4}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.....	.....	....

Armstrong Combination Wrenches

One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
1157	$\frac{1}{32}$ & $\frac{7}{32}$	3	1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1158	$\frac{1}{4}$ & $\frac{1}{4}$	3	1163	$\frac{9}{16}$ & $\frac{5}{8}$	$5\frac{7}{8}$
1158-A	$\frac{5}{32}$ & $\frac{9}{32}$	$3\frac{1}{2}$	1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1159	$\frac{5}{16}$ & $\frac{5}{16}$	$3\frac{1}{2}$	1165	$\frac{11}{16}$ & $1\frac{1}{16}$	$7\frac{1}{8}$
1159-A	$\frac{11}{32}$ & $\frac{11}{32}$	$4\frac{1}{4}$	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$	1167-A	$\frac{13}{16}$ & $\frac{13}{16}$	$10\frac{1}{2}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5	1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$

Armstrong Box Socket Wrenches

15° Angle Offset Long Pattern			45° Angle, Double Offset Short Pattern		
One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
7723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{8}$	9723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{1}{2}$
7025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{1}{4}$	9725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$
7727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{1}{4}$	9727	$\frac{9}{16}$ & $\frac{5}{8}$	6
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12	.....	.....	...
7033-C	$\frac{1}{16}$ & 1	$13\frac{3}{4}$	.....	.....	...

Pliers

1519-A, 5" Length, 3-Position Rib-Joint.
 1520-A, 10" Length, 5-Position Rib-Joint.



ARMSTRONG ARMALLOY SOCKET WRENCH SET

GENERAL MECHANICS' SET NO. NM-S-150—COMPLETE ASSORTMENT

A specially selected assortment of $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ " Square Drive Sockets and Drive Parts together with Engineers' Wrenches, Combination Wrenches, Box Socket Wrenches, Screw Drivers, Punches, Chisels, an Adjustable Wrench, a Combination Slip-joint Pliers and a Ball Pein Hammer.

Contents:

152 Pieces: 71 Sockets, 26 Drive Parts, 8 Open End Wrenches, 6 Box Socket Wrenches, 18 Combination Wrenches, 11 Screwdrivers, 7 Punches, 2 Chisels, 1 Each, Adjustable Wrench, Pliers, Ball Pein Hammer. Complete in Steel Case No. C-33 with No. CT-5 Tote Tray and Steel Case No. C-3. Approx. wt. 83 lbs.



$\frac{1}{4}$ " Square Drive

One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.
NM-604	$\frac{1}{8}$	NM-611	$\frac{11}{32}$	NMD-610	$\frac{3}{16}$
NM-605	$\frac{9}{32}$	NM-612	$\frac{3}{8}$	NMD-611	$\frac{11}{32}$
NM-606	$\frac{3}{16}$	NM-614	$\frac{1}{16}$	NMD-612	$\frac{3}{8}$
NM-607	$\frac{7}{32}$	NM-1216	$\frac{1}{2}$	NMD-614	$\frac{1}{16}$
NM-608	$\frac{1}{4}$	NM-1218	$\frac{9}{16}$	NMD-616	$\frac{1}{2}$
NM-609	$\frac{9}{32}$	NMD-608	$\frac{1}{4}$		
NM-610	$\frac{5}{16}$	NMD-609	$\frac{9}{32}$		

NM-91, Reversible Ratchet. NM-115, 6" Extension.
 NM-106, Shock-Proof Handle. NM-116, 14" Extension.
 NM-42, Flexible Hinge Handle. NM-140, Universal Joint.
 NM-20A, Sliding T Handle. C-34, Steel Case
 NM-102, 2" Extension.

$\frac{3}{8}$ " Square Drive

One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.
F-612	$\frac{3}{8}$	F-1228	$\frac{7}{8}$	FD-626	$\frac{13}{16}$
F-614	$\frac{7}{16}$	FD-612	$\frac{3}{8}$	FX-1212	$\frac{3}{8}$
F-616	$\frac{1}{2}$	FD-614	$\frac{7}{16}$	FX-1214	$\frac{7}{16}$
F-618	$\frac{9}{16}$	FD-616	$\frac{1}{2}$	FX-1216	$\frac{1}{2}$
F-620	$\frac{5}{8}$	FD-618	$\frac{9}{16}$	FX-1218	$\frac{9}{16}$
F-622	$\frac{11}{16}$	FD-620	$\frac{5}{8}$	FX-1220	$\frac{5}{8}$
F-624	$\frac{3}{4}$	FD-622	$\frac{11}{16}$	FX-1222	$\frac{11}{16}$
F-1226	$\frac{13}{16}$	FD-624	$\frac{3}{4}$	FX-1224	$\frac{3}{4}$

F-91, Reversible Ratchet.
 F-40, Flexible Hinge Handle.
 F-20A, Sliding T Handle.
 F-15, Speeder.
 F-103, 3" Extension.
 F-115, 10 $\frac{1}{2}$ " Extension.
 F-117, 17" Extension.
 F-140, Universal Joint.
 FP-22, #2 Phillips Screwdriver Socket.
 FP-32, #3 Phillips Screwdriver Socket.

$\frac{1}{2}$ " Square Drive

One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.
ST-1212	$\frac{3}{8}$	ST-1228	$\frac{7}{8}$	SD-1222	$\frac{11}{16}$
ST-1214	$\frac{7}{16}$	ST-1230	$\frac{15}{16}$	SD-1224	$\frac{3}{4}$
ST-1216	$\frac{1}{2}$	ST-1232	1	SD-1226	$\frac{13}{16}$
ST-1218	$\frac{9}{16}$	ST-1234	$\frac{11}{16}$	SD-1228	$\frac{7}{8}$
ST-1219	$\frac{19}{32}$	ST-1236	$\frac{13}{16}$	SD-1230	$\frac{15}{16}$
ST-1220	$\frac{5}{8}$	ST-1238	$\frac{13}{16}$	SD-1232	1
ST-1222	$\frac{11}{16}$	ST-1240	$\frac{13}{16}$	SD-1234	$\frac{11}{16}$
ST-1224	$\frac{3}{4}$	SD-1216	$\frac{1}{2}$	SD-1236	$\frac{13}{16}$
ST-1225	$\frac{25}{32}$	SD-1218	$\frac{9}{16}$		
ST-1226	$\frac{13}{16}$	SD-1220	$\frac{5}{8}$		

S-91, Reversible Ratchet. S-102P, 2 $\frac{1}{2}$ " Extension.
 S-20A, Sliding T Handle. S-115P, 10 $\frac{1}{2}$ " Extension.
 S-41, 17" Flex. Hinge Handle. S-121P, 20" Extension.
 S-15, 19" Speeder. S-140, Universal Joint.

Armstrong Double Head Engineers' Wrenches

One Each No.	Nominal Open. In.	Lgth. In.	One Each No.	Nominal Open. In.	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{1}{16}$	4 $\frac{1}{8}$	1731	$\frac{3}{4}$ & $\frac{13}{16}$	9 $\frac{1}{4}$
1725-B	$\frac{1}{2}$ & $\frac{9}{16}$	6 $\frac{1}{8}$	1033-A	$\frac{15}{16}$ & $\frac{1}{8}$	10
1027-B	$\frac{9}{8}$ & $\frac{11}{16}$	7 $\frac{1}{4}$	1735	1 & $\frac{1}{8}$	11 $\frac{3}{4}$
1028	$\frac{19}{32}$ & $\frac{25}{32}$	7 $\frac{7}{8}$	1037	$\frac{11}{16}$ & $\frac{1}{4}$	12 $\frac{3}{4}$

Box Socket Wrenches—45° Angle Double Offset—Long Pattern

No.	Openings, Inches	Lgth., In.	No.	Openings, Inches	Lgth., In.
8723	$\frac{3}{8}$ & $\frac{1}{16}$	7 $\frac{3}{4}$	8029	$\frac{11}{16}$ & $\frac{25}{32}$	11
8025	$\frac{1}{2}$ & $\frac{19}{32}$	8 $\frac{3}{4}$	8731-A	$\frac{3}{4}$ & $\frac{1}{8}$	12 $\frac{1}{2}$
8727	$\frac{9}{16}$ & $\frac{5}{8}$	9 $\frac{3}{4}$	8033-C	$\frac{15}{16}$ & 1	14 $\frac{1}{2}$

Armstrong Combination Wrenches

One Each No.	Nominal Open. In. (Both Ends)	Lgth. In.	One Each No.	Nominal Open. In. (Both Ends)	Lgth. In.
1159	$\frac{5}{16}$	3 $\frac{1}{2}$	1166	$\frac{3}{4}$	8
1159-A	$\frac{11}{32}$	4 $\frac{1}{4}$	1166-A	$\frac{25}{32}$	8
1160	$\frac{3}{8}$	4 $\frac{1}{4}$	1167-AL	$\frac{13}{16}$	12 $\frac{1}{8}$
1161	$\frac{7}{16}$	5	1167-L	$\frac{7}{8}$	12 $\frac{1}{8}$
1162	$\frac{1}{2}$	5 $\frac{1}{4}$	1168-L	$\frac{15}{16}$	13 $\frac{1}{8}$
1163	$\frac{9}{16}$	5 $\frac{7}{8}$	1170-L	1	13 $\frac{3}{8}$
1163-A	$\frac{19}{32}$	5 $\frac{7}{8}$	1171-L	$\frac{1}{16}$	15
1164	$\frac{5}{8}$	6 $\frac{1}{4}$	1172-L	$\frac{1}{8}$	15
1165	$\frac{11}{16}$	7 $\frac{1}{8}$	1173-L	$\frac{1}{4}$	18 $\frac{1}{8}$

Screwdrivers

Square Shank, No.	Tip Width, Inches	Blade Length, Inches	Square Shank, No.	Tip Width, Inches	Blade Length, Inches
3050	$\frac{1}{4}$	11 $\frac{1}{4}$	3060	$\frac{5}{16}$	6
3052	$\frac{3}{16}$	4	3064	$\frac{3}{8}$	8
3054	$\frac{1}{4}$	4	3066	$\frac{3}{8}$	12

No.	Phillips No.	Stock Size, Inches	Blade Length, Inches
3252	2	Stub	1 $\frac{3}{4}$
3254	1	$\frac{3}{16}$	3
3256	2	$\frac{1}{4}$	4
3258	3	$\frac{5}{16}$	6
3260	4	$\frac{3}{8}$	8

Miscellaneous Tools

3398 Center Punch. 3390 Solid Punch.
 3354 Pin Punch. 3408 Cold Chisel.
 3358 Pin Punch. 3412 Cold Chisel.
 3360 Pin Punch. 1—No. 10 Adj. Wrench.
 3384 Solid Punch. 1—8" Comb. Slip-joint Plier.
 3388 Solid Punch. 1—No. 0 Ball Pein Hammer.



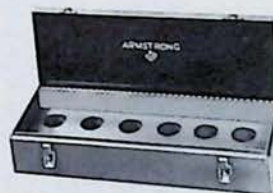
ARMSTRONG TOOL CASES

ARMSTRONG steel tool cases are ruggedly constructed for long service, fitted to simplify tool selection, and attractive in appearance. Constructed of sheet steel generously spot welded. Full length piano type hinges keep case

lids in alignment. Handles on larger cases provide adequate finger clearance and permit comfortable toting. Cases are finished in two-tone gray baked enamel with lids dark gray, bases lighter gray.



Style	Case No.	Dimensions Inches	For Sets Nos.	Illus. on page	Approx. Wt. Lb.
A	C-1	6 $\frac{1}{2}$ x3 $\frac{1}{2}$ x1 $\frac{1}{4}$	NM-10, -10A, -14, -18, -18P, -19, 19P, 24, -24P	66, 67	.63
A	C-2A	6 $\frac{7}{8}$ x3x1 $\frac{1}{4}$	NM10HS, F7HS, FX7, SX5	67, 70, 74	.57
A	C-2B	6 $\frac{7}{8}$ x3x1 $\frac{1}{4}$	F7SS, S6HS, S7SS	70, 74	.56
A	C-5	9 $\frac{1}{4}$ x3 $\frac{1}{4}$ x2 $\frac{5}{8}$	F-10, F-10A, AM-50	70, 87	1.25
B	C-7	17x5 $\frac{1}{4}$ x3	F-21, -21A, -21C, F-29	70, 71	4.00
B	C-11	12x5 $\frac{1}{2}$ x3 $\frac{3}{8}$	AM-100	87	2.75
B	C-15	14x5 $\frac{3}{4}$ x3	S-22, -22A, -22C	75	3.50
B	C-21	23x7 $\frac{1}{2}$ x4 $\frac{1}{8}$	H-13, H-15, H-18	84	10.00
B	C-23	21 $\frac{1}{4}$ x8 $\frac{1}{8}$ x5	X-10	86	9.25
C	C-13	17 $\frac{1}{2}$ x3 $\frac{1}{4}$ x2 $\frac{3}{8}$	S-11, S-12	74	2.00
C	C-25	31x7x4 $\frac{1}{4}$	X-16	86	16.13
D	C-17	21x6 $\frac{1}{2}$ x3 $\frac{1}{2}$	S-18, S-20, S-25, S-28, S-33	74, 75, 76	6.38
E	C-19	22 $\frac{3}{4}$ x7 $\frac{3}{4}$ x2 $\frac{3}{8}$	Special $\frac{1}{2}$ " Drive Sets	81	5.00
E	C-34	17x5 $\frac{5}{8}$ x1 $\frac{1}{4}$	NM-34, NMS-150	67	3.87
F	C-35	21 $\frac{1}{2}$ x5 $\frac{5}{8}$ x3 $\frac{3}{8}$	F-51	71	5.25
F	C-29	22 $\frac{3}{4}$ x8 $\frac{5}{8}$ x6	SH-36, SH-36C, S-59	77	15.75
F	C-47	26 $\frac{1}{2}$ x10 $\frac{1}{2}$ x7	P-23C Pipe Tool Set	107	32.25
G	C-42	20 $\frac{7}{8}$ x7x4 $\frac{5}{16}$	20 Series Drop Head Pipe Threading Sets	102	10.25
G	C-44	27x7 $\frac{3}{8}$ x4 $\frac{5}{16}$	21 Series Drop Head Pipe Threading Sets	102	7.85
G	C-45	21x5 $\frac{1}{8}$ x3 $\frac{1}{2}$	OD Series Drop Head Pipe Threading Sets	103	8.75
G	C-46	30 $\frac{7}{8}$ x4 $\frac{3}{4}$ x9	22 Series Drop Head Pipe Threading Sets	102	22.60
H	C-50	9 $\frac{1}{2}$ x4x1 $\frac{1}{16}$	7080	114	1.00
H	C-51	10x6 $\frac{7}{8}$ x1 $\frac{1}{16}$	7090	114	1.75
I	CT-5	22 $\frac{1}{2}$ x8 $\frac{1}{8}$ x3	SH-36, NMH-106, NMS-150	77, 78, 79	5.00
I	CT-7	25 $\frac{1}{2}$ x9 $\frac{1}{2}$ x3	P-23C	107	7.50
J	CT-9	6 $\frac{1}{4}$ x1 $\frac{3}{8}$ x1	A4-66	90	1.00



ARMSTRONG PLASTIC ROLLS

ARMSTRONG tool set rolls are made of tough, dark blue, non-cracking plastic with transparent plastic pockets. This grease-, oil-, and stain-resistant material is easily wiped clean. Rolls are amply cut to provide fold-overs which prevent tools from dropping out. All rolls have cloth ties. Rolls are designed to accommodate specific sets as listed.

No.	Number of Pockets	Dimensions		Used for Sets Nos.	Illustrated on Page	Approx. Wt. Lb.
		Width	Height			
R-1	9	21 $\frac{1}{2}$	22 $\frac{1}{2}$	9-38R, 9A-38R	45	.56
R-3	6	11 $\frac{3}{8}$	14 $\frac{1}{8}$	6-26R, 6A-26R, RB-6R, 1106R, 1106LR, G6LR	45, 50	.19
R-5	5	7 $\frac{5}{8}$	6 $\frac{3}{4}$	H-5R, 3447-R	47, 99	.06
R-6	6	14 $\frac{1}{4}$	19 $\frac{1}{2}$	7006R, 8006R	52	.24
R-7	11	9 $\frac{3}{4}$	7 $\frac{5}{8}$	1140P	47	.09
R-8	10	11 $\frac{3}{4}$	11 $\frac{1}{4}$	3448-R	100	.17
R-9	14	13 $\frac{1}{2}$	8	1142P	47	.14
R-10	6	7	11 $\frac{1}{4}$	3446-R	100	.07
R-11	6	6 $\frac{3}{4}$	8 $\frac{3}{4}$	1186R	47	.19
R-15	8	16 $\frac{1}{4}$	10	1042R	47	.20
R-17	4	5 $\frac{5}{8}$	10	1104R	48	.08
R-19	18	21 $\frac{5}{8}$	27 $\frac{3}{4}$	1118R	49	.76
R-20	15	23	34	1115-R	49	.81
R-21	8	11 $\frac{7}{8}$	13 $\frac{7}{8}$	1108R	48	.19
R-23	12	23 $\frac{3}{4}$	20 $\frac{1}{8}$	1110LR, G10LR, 1112R	48, 49	.58
R-25	3	5 $\frac{1}{2}$	12 $\frac{3}{4}$	RB-3R	50	.08
R-27	4	4 $\frac{3}{4}$	7 $\frac{1}{8}$	1154R	52	.06
R-31	6	10 $\frac{5}{8}$	25	3001	95	.30
R-33	5	9	21 $\frac{3}{4}$	3003	95	.22
R-35	5	6 $\frac{3}{4}$	13 $\frac{7}{8}$	3442-R	100	.11
R-37	14	18 $\frac{1}{4}$	21 $\frac{1}{2}$	3440-R	100	.39
R-39	19	18 $\frac{1}{4}$	21 $\frac{1}{2}$	3444-R	100	.47



ARMSTRONG TOOL CHESTS AND CABINETS

QUALITY

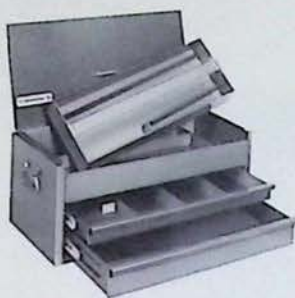
—Superior construction is designed into every Armstrong Tool Cabinet and Chest. The hardware, locks, and casters are all chosen for maximum strength and rigidity.

APPEARANCE

—Durable red baked-on enamel gives finished quality look—easy to keep clean and resists scratching and marring.

VERSATILITY

—Each unit is designed for maximum storage capacity—and several chest-cabinet combinations are possible.



No. C-31*

2 Drawer Metal Chest

Width	Depth	Height	Weight
24"	14 1/4"	10 3/4"	37 lbs.

Drawer Dimensions			
1 compartment—24" x 11 3/4" x 3 3/4"			
1 drawer—21 1/4" x 11" x 1 3/4"			
1 drawer—21 1/4" x 11" x 3"			

*For Set No. NMH-106, described on P. 78.



TC-2000

Mobile Workbench

Over-all width.....29"
Over-all length.....50"
Over-all height.....37 3/4"
Workbench.....29 x 32 3/4"

Platform space 17 1/2 x 29"
 Drawers 5—13 x 28 x 3" deep
 5—12 x 28 x 3" deep
 6-inch ball bearing casters
 Total weight 330 lbs.
 (Does not include vises.)



No. C-62

10 Drawer Metal Chest

Width	Depth	Height	Weight
26 1/8"	15 1/8"	18"	105 lbs.

No. TC-1002

11 Drawer Roller Cabinet

Width	Depth	Height	Weight
26 1/2"	18 1/8"	34 3/4"	172 lbs.

Drawer Dimensions

Chest

1 drawer—5 1/2" x 14 1/4" x 4 5/8"
3 drawers—9 3/8" x 14 1/4" x 1 3/8"
3 drawers—5 1/2" x 14 1/4" x 1 3/8"
2 drawers—22 3/4" x 14 1/4" x 2"
1 drawer—22 3/4" x 14 1/4" x 3 1/8"

Cabinet

6 drawers—10 5/8" x 16 3/4" x 1 5/16"
3 drawers—22 1/4" x 16 3/4" x 3"
2 drawers—22 1/4" x 16 3/4" x 6 1/16"



No. C-63

10 Drawer Metal Chest

Width	Depth	Height	Weight
34"	16"	18 3/4"	147 lbs.

No. TC-1003

8 Drawer Roller Cabinet

Width	Depth	Height	Weight
34 1/4"	18 1/16"	34 5/8"	235 lbs.

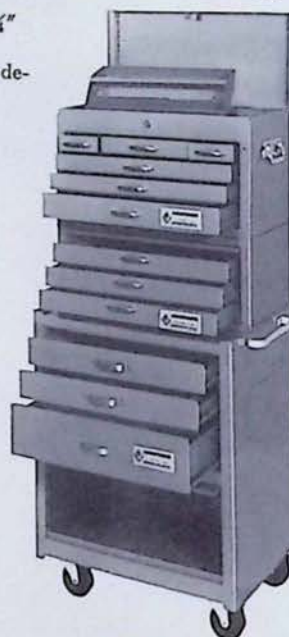
Drawer Dimensions

Chest

6 drawers—11" x 14 7/8" x 1 3/4"
1 drawer—5 1/4" x 14 7/8" x 5 3/4"
2 drawers—29 3/4" x 14 7/8" x 1 3/4"
1 drawer—29 3/4" x 14 7/8" x 2 7/8"

Cabinet

2 drawers—27 1/16" x 16 1/4" x 1 9/16"
1 drawer—27 1/16" x 17 1/8" x 2 1/8"
3 drawers—27 1/16" x 17 1/8" x 3 1/16"
1 drawer—27 1/16" x 17 1/8" x 4 1/16"
1 drawer—27 1/16" x 17 1/8" x 6 1/16"



No. C-61

6 Drawer Metal Chest

Width	Depth	Height	Weight
26 1/8"	12 1/8"	15"	64 lbs.

No. C-60

3 Drawer Intermediate Chest

Width	Depth	Height	Weight
26 1/8"	12 1/8"	10 1/4"	44 lbs.

No. TC-1000

3 Drawer Roller Cabinet

Width	Depth	Height	Weight
26 3/8"	17 3/8"	32 1/4"	85 lbs.

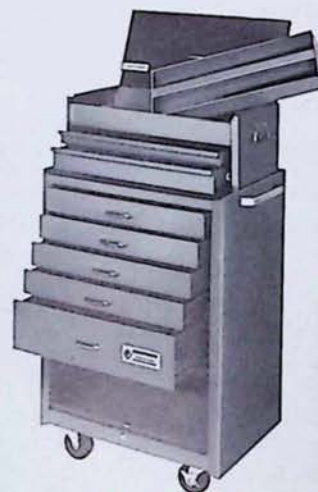
Drawer Dimensions

Chest

2 drawers—4 5/8" x 10 3/4" x 1 7/8"
1 drawer—11 1/4" x 10 3/4" x 1 7/8"
2 drawers—22 1/2" x 10 3/4" x 1 7/8"
1 drawer—22 1/2" x 10 3/4" x 2 7/8"

Cabinet

3 drawers—22 1/4" x 11" x 2 1/8"
2 drawers—22" x 15 3/4" x 2 7/8"
1 drawer—22" x 15 3/4" x 5 1/8"
1 compartment—23 1/4" x 17 1/4" x 9 3/4"



No. C-33*

2 Drawer Metal Chest

Width	Depth	Height	Weight
24"	14 1/4"	10 3/4"	38 lbs.

No. TC-1001

5 Drawer Roller Cabinet

Width	Depth	Height	Weight
26 1/2"	18 1/8"	36"	145 lbs.

Drawer Dimensions

Chest

1 compartment—24" x 11 3/4" x 3 3/4"
2 drawers—21 1/4" x 11" x 1 3/4"

Cabinet

4 drawers—22 1/4" x 16 3/4" x 3 1/8"
1 drawer—22 1/4" x 16 3/4" x 6 1/16"
1 compartment—23 1/2" x 17 1/8" x 9 3/4"

*For Set No. NMS-150, described on P. 79.



ARMSTRONG ARMALLOY SOCKET WRENCHES

Heavy Duty Series— $\frac{3}{4}$ " Square Drive

$\frac{3}{4}$ "

Selected Alloy Steel

Chrome Plated SOCKETS



12-Point
Opening



Extra Deep
12-Point
Opening

Nominal Opening Inches	No.	Approx. Wt., Lb.
$\frac{3}{4}$	H-1224	.29
$\frac{13}{16}$	H-1226	.30
$\frac{7}{8}$	H-1228	.31
$\frac{15}{16}$	H-1230	.31
$\frac{31}{32}$	H-1231	.38
1	H-1232	.38
$\frac{11}{16}$	H-1234	.50
$\frac{1}{8}$	H-1236	.50
$\frac{13}{16}$	H-1238	.63
$\frac{1}{4}$	H-1240	.75
$\frac{15}{16}$	H-1242	.75
$\frac{13}{8}$	H-1244	.88
$\frac{17}{16}$	H-1246	.88
$\frac{1}{2}$	H-1248	1.00
$\frac{19}{16}$	H-1250	1.00
$\frac{15}{8}$	H-1252	1.00
$\frac{111}{16}$	H-1254	1.00
$\frac{13}{4}$	H-1256	1.25
$\frac{113}{16}$	H-1258	1.25
$\frac{17}{8}$	H-1260	1.25
2	H-1264	1.38
$\frac{21}{16}$	H-1266	1.38
$\frac{21}{8}$	H-1268	1.50
$\frac{23}{16}$	H-1270	1.50
$\frac{21}{4}$	H-1272	1.75
$\frac{25}{16}$	H-1274	2.15
$\frac{23}{8}$	H-1276	2.21

Nominal Opening Inches	No.	Approx. Wt., Lb.
$\frac{7}{8}$	HD-1228	.75
$\frac{15}{16}$	HD-1230	.75
1	HD-1232	.75
$\frac{11}{16}$	HD-1234	.75
$\frac{11}{8}$	HD-1236	.87
$\frac{11}{4}$	HD-1240	1.25
$\frac{15}{16}$	HD-1242	1.40
$\frac{13}{8}$	HD-1244	1.57
$\frac{17}{16}$	HD-1246	1.63
$\frac{11}{2}$	HD-1248	1.80
$\frac{15}{8}$	HD-1252	1.95

For $\frac{3}{4}$ " Sq. Drive Extra Deep Power Drive Sockets see page 92.

Chrome Plated DRIVE PARTS

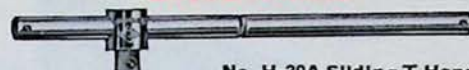


No. HA-51 Reversible Ratchet, Drop Forged

No. HA-51 Reversible Ratchet—Instantly reversible by moving reversing lever from left to right. Stop ball prevents accidental shifting of ratchet action during use. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Working arc is 15°. Bright chrome finish.

Selected Alloy Steel

Chrome Plated DRIVE PARTS



No. H-20A Sliding T Handle



No. H-41B Sliding Bar



Nos. H-104, H-110 and H-115 Extensions



No. H-41 Flexible Hinge Handle



No. H-140
Universal Joint



No. HX-130
Adapter

No.	Description	Approx. Wt., Lb.
HA-51	Reversible Ratchet, 19" Long.....	5.00
H-20A	Sliding T Handle, 17 $\frac{1}{2}$ " Long.....	2.75
H-41	Flexible Hinge Handle, 22" Long. Has $\frac{3}{4}$ " Cross Hole for Bar.....	3.25
H-41B	Sliding Bar, $\frac{3}{4}$ "x16"; For No. H-41.....	4.4
H-104	Extension, 4" Long.....	.88
H-110	Extension, 8" Long.....	1.50
H-115	Extension, 15 $\frac{1}{2}$ " Long.....	2.75
H-140	Universal Joint.....	1.13
SH-130	Adapter, $\frac{1}{2}$ " Sq. Female, $\frac{3}{4}$ " Sq. Male....	.25
SH-131	Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Female....	.25
HX-130	Adapter, $\frac{3}{4}$ " Sq. Female, 1" Sq. Male....	.59
HX-131	Adapter, $\frac{3}{4}$ " Sq. Male, 1" Sq. Female....	.59

BLACK FINISH DRIVE PARTS



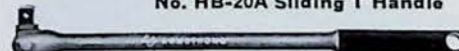
No. HAB-51 Reversible Ratchet, Drop Forged



No. HAB-50 Plug Connector Type Ratchet, Drop Forged



No. HB-20A Sliding T Handle



No. HB-41 Flexible Hinge Handle



No. HB-150
Plug Connector



No. HXB-151
Plug Adapter

No.	Description	Approx. Wt., Lb.
HAB-51	Reversible Ratchet, 19" Long.....	5.00
HAB-50	Plug Connector Type Ratchet, 19" Long...	5.00
HB20A	Sliding T Handle, 17 $\frac{1}{2}$ " Long.....	2.75
HB41	Flexible Hinge Handle, 22" Long. Has $\frac{3}{4}$ " Cross Hole for Bar.....	3.25
SHB-151	Plug Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Male..	.30
HXB-151	Plug Adapter, $\frac{3}{4}$ " Sq. Male, 1" Sq. Male...	.40
HB-150	Plug Connector, $\frac{3}{4}$ " Square.....	.25

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



3/4"

ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Heavy Duty Series—3/4" Square Drive

Set No. H-13



Contents

13 Pieces: 10 Sockets, 3 Drive Parts.
Complete with Steel Case No. C-21. Approx. weight, 22 1/4 lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	1 1/16	H-1242	1 5/16	H-1252	1 5/8
H-1236	1 1/8	H-1244	1 3/8	H-1256	1 3/4
H-1238	1 3/16	H-1246	1 1/16	.....	...
H-1240	1 1/4	H-1248	1 1/2	.....	...

Drive Parts

No. H-20A, Sliding T Handle, 17 1/2" Long.
No. H-110, Extension, 8" Long.
No. H-115, Extension, 15 1/2" Long.

Set No. H-15



Contents

15 Pieces: 10 Sockets, 5 Drive Parts.
Complete with Steel Case No. C-21. Approx. weight, 28 3/4 lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	1 1/16	H-1242	1 5/16	H-1252	1 5/8
H-1236	1 1/8	H-1244	1 3/8	H-1256	1 3/4
H-1238	1 3/16	H-1246	1 1/16	.....	...
H-1240	1 1/4	H-1248	1 1/2	.....	...

Drive Parts

No. HA-51, Reversible Ratchet, 19" Long.
No. H-20A, Sliding T Handle, 17 1/2" Long.
No. H-110, Exten. 8" Long.
No. H-115, Exten. 15 1/2" Long.
No. H-140, Universal Joint.

Set No. H-18

Contents

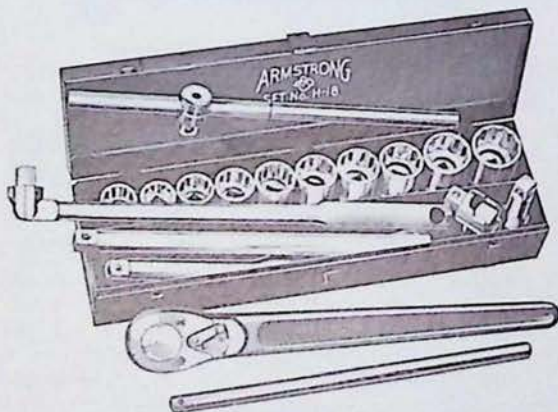
18 Pieces: 10 Sockets, 8 Drive Parts.
Complete with Steel Case No. C-21. Approx. weight, 39 1/2 lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	1 1/16	H-1246	1 1/16	H-1260	1 7/8
H-1236	1 1/8	H-1248	1 1/2	H-1264	2
H-1240	1 1/4	H-1252	1 5/8	.....	...
H-1242	1 5/16	H-1258	1 13/16	.....	...

Drive Parts

No. HA-51, Reversible Ratchet, 19" Long.
No. H-20A, Sliding T Handle, 17 1/2" Long.
No. H-41, Flexible Handle, 22" Long.
No. H-41B, Sliding Bar for No. H-41.
No. H-104, Exten., 4" Long.
No. H-110, Exten., 8" Long.
No. H-115, Exten., 15 1/2" Long.
No. H-140, Univer. Joint.





ARMSTRONG ARMALLOY SOCKET WRENCHES

Extra Heavy Duty Series—1" Square Drive

1"

Selected Alloy Steel

Chrome Plated SOCKETS

Made from selected grade alloy steel. Gauged to accurate limits. Heat treated and tested to assure maximum strength. Finished in chrome plate. These sockets are designed for the most severe service where extra strength is required. These sockets are equipped with "Drive Lock", a device which eliminates all danger of sockets becoming detached in service. To release socket press the button on the socket and pull. Sockets have cross hole for 1" diameter sliding bar.

Regular Sockets—Double Hexagon (12-Point) Openings

Cross Hole for 1" Bar



No.	Nominal Opening Inches	Approx. Weight Lb.
X-1234	1 1/16	.50
X-1236	1 1/8	.50
X-1240	1 1/4	.88
X-1244	1 3/8	1.00
X-1246	1 7/16	1.25
X-1248	1 1/2	1.25
X-1252	1 5/8	1.50
X-1258	1 3/4	1.88
X-1260	1 7/8	2.00
X-1264	2	2.25
X-1268	2 1/8	2.75
X-1270	2 1/4	3.00
X-1272	2 1/2	3.25
X-1276	2 3/8	3.50
X-1280	2 1/2	3.25
X-1282	2 5/8	4.00
X-1284	2 3/4	4.50
X-1288	2 7/8	3.75
X-1294	2 15/16	4.50
X-12100	3 1/8	4.25

Selected Alloy Steel

Chrome Plated DRIVE PARTS



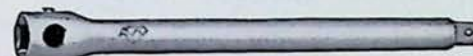
Drop Forged

No. XA-51 Reversible Ratchet

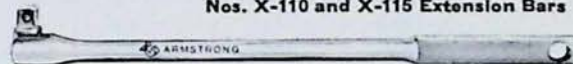
No. XA-51 Reversible Ratchet—Instantly reversible by moving reversing lever from left to right. Stop ball prevents accidental shifting of ratchet action during use. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Working arc is 15°. Chrome plate finish. Length, 30".



No. X-20B Sliding Handle



Nos. X-110 and X-115 Extension Bars



No. X-41 Flexible Hinge Handle



Nos. HX-130, HX-131
Adapters

No.	Description	Approx. Wt., Lb.
XA-51	Reversible Ratchet, 30" Long.....	7.0
X-20B	Sliding Handle, 1" Diameter, 20" Long	4.0
X-20C	Adapter for Sliding Handle No. X-20B	1.0
X-41	Flexible Hinge Handle, 27" Long, with Cross Hole for 1" Bar.....	9.3
X-110	Extension Bar, 9" Long with Cross Hole for 1" Diameter Bar.....	2.25
X-115	Extension Bar, 18" Long, with Cross Hole for 1" Diameter Bar.....	4.25
HX-130	Adapter, 3/4" Sq. Female, 1" Sq. Male	.59
HX-131	Adapter, 3/4" Sq. Male, 1" Sq. Female	.59

BLACK FINISH DRIVE PARTS



No. XAB-50 Plug Connector Type Ratchet, Drop Forged



No. XB-150A
Plug Connector



No. HXB-151
Plug Adapter

No.	Description	Approx. Wt., Lb.
XAB-50	Plug Connector Type Ratchet.....	6.3
XB-150A	Plug Connector, 1" Square.....	.50
HXB-151	Plug Adapter, 3/4" Sq. Male, 1" Sq. Male ...	.40

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



1"

ARMSTRONG ARMALLOY SOCKET WRENCH SETS**Extra Heavy Duty Series—1" Square Drive**

These sets are especially recommended for servicing trucks and busses, as well as for general work requiring extra heavy duty tools for severe service.

Set No. X-10**Contents**

10 Pieces: 7 Sockets, 3 Drive Parts.

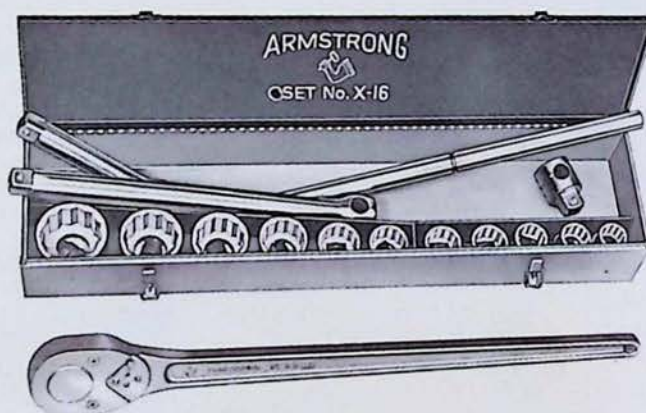
Complete with Steel Case No. C-23. Approximate weight, 32 Lb.

Sockets

No.	Nominal Opening Inches	No.	Nominal Opening Inches
X-1240	1 $\frac{1}{4}$	X-1264	2
X-1246	1 $\frac{3}{16}$	X-1270	2 $\frac{3}{16}$
X-1252	1 $\frac{5}{8}$	X-1276	2 $\frac{3}{8}$
X-1258	1 $\frac{13}{16}$	.....	...

Drive Parts

No.	Description
X-20B	Sliding Handle, 20" Long
X-20C	Adapter for No. X-20B
X-110	Extension, 9" Long

Set No. X-16**Contents**

16 Pieces: 11 Sockets, 5 Drive Parts.

Complete with Steel Case No. C-25. Approximate weight, 53 Lb.

Sockets

No.	Nominal Opening Inches	No.	Nominal Opening Inches	No.	Nominal Opening Inches
X-1234	1 $\frac{1}{16}$	X-1246	1 $\frac{1}{16}$	X-1264	2
X-1236	1 $\frac{1}{8}$	X-1248	1 $\frac{1}{2}$	X-1270	2 $\frac{3}{16}$
X-1240	1 $\frac{1}{4}$	X-1252	1 $\frac{5}{8}$	X-1276	2 $\frac{3}{8}$
X-1244	1 $\frac{3}{8}$	X-1258	1 $\frac{13}{16}$	.....	...

Drive Parts

No.	Description
XA-51	Reversible Ratchet, 30" Long
X-20B	Sliding Handle, 20" Long
X-20C	Adapter for No. X-20B
X-110	Extension, 9" Long
X-115	Extension, 18" Long

See page 81 for dimensions of steel cases



ARMSTRONG ARMALLOY HOLLOW SCREW WRENCHES

Sets Nos. AM-100 and AM-50

ARMSTRONG Hollow Screw Wrench Sets provide detachable Hex Head Wrenches, handles, extensions and ratchets for all hexagon socket hollow screws from $\frac{1}{4}$ to 1 inch in diameter.

Sockets and drive parts are made from selected grade alloy steel, heat treated and tested to assure maximum strength. Finished in chrome plate.

Two piece construction of Hex Head Wrenches permits easy replacement of Hexagon Bits, which are held in sockets by means of screws or pins. Bits are rust proof finish.

Hex Head Wrenches

$\frac{1}{4}$ -Inch Square Drive

No.	Size Hexagon Key Inches	Fits Safety Hollow Set Screws, Diam. Screw Inches	Fits 1936 Series Socket Head Cap Screw, Diam. Screw Inches	Fits 1900 Series Socket Head Cap Screw, Diam. Screw Inches
NMA-4	$\frac{3}{8}$	$\frac{1}{4}$	#8	...
NMA-5	$\frac{5}{16}$	$\frac{3}{8}$	#10 & #12	#10

$\frac{3}{8}$ -Inch Square Drive

FA-6	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
FA-7	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
FA-8	$\frac{5}{16}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
FA-10	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$

$\frac{1}{2}$ -Inch Square Drive

SA-12	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{1}{2}$ & $\frac{3}{4}$	$\frac{1}{2}$ & $\frac{3}{4}$
SA-16	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
SA-18	$\frac{5}{8}$	1	$\frac{3}{4}$ & $\frac{1}{2}$	...
SA-20	$\frac{3}{4}$	...	1	$\frac{3}{4}$

Drive Parts

$\frac{1}{4}$ -Inch Square Drive

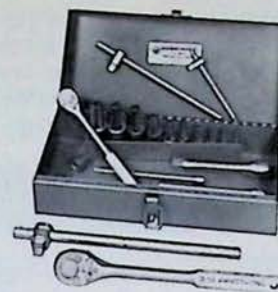
No.	Description
NM-20A	Sliding T Handle
NM-115	Extension

$\frac{3}{8}$ -Inch Square Drive

F-20A	Sliding T Handle
F-91	Reversible Ratchet
F-110	Extension
MF-131	Adapter— $\frac{1}{4}$ " Square Male, $\frac{3}{8}$ " Square Female

$\frac{1}{2}$ -Inch Square Drive

S-20A	Sliding T Handle
S-91	Reversible Ratchet
S-110P	Extension



Set No. AM-100

Set No. AM-100: Consists of one each of all Sockets, Handles and Drive Parts listed; 19 Pieces. Complete in fitted Steel Case No. C-11. Approx. wt., 10 lb.

For complete description of handles and parts, see pages 66, 68 and 72.

Set No. AM-50: Consists of one each of the following:

NMA-4	FA-7	F-20A	NM-115
NMA-5	FA-8	F-110	MF-131
FA-6	F-91	NM-20A	

11 Pieces, Complete in Steel Case No. C-5. Approximate weight, 6 lb.

ARMSTRONG REVERSIBLE BRIDGE WRENCHES

For Bridge, Structural and Erecting Work

Sockets used with this ratchet are drilled to permit bolts to pass completely through, facilitating the turning of nuts all the way down on long bolts. Sockets are machined from solid selected steel, with teeth hob cut, hardened and finished in Parco Lubrite. They slip easily into the ratchet and are

held securely by means of a steel retaining ring.

Ratchet is drop forged from selected steel, for extra strength, and is finished in Parco Lubrite. Reversing mechanism operates smoothly and easily. All parts are made of steel and are finished in Parco Lubrite.

BRIDGE SOCKETS

$1\frac{1}{16}$ to $\frac{3}{8}$ "
Nominal Openings

Sockets are machined from solid selected steel and properly hardened. Teeth are hob cut.



Hex Socket

Sockets for No. 2-BR Ratchet

Nominal Opening Size Across Flats Inches	Socket No.	Approx. Weight Lb.
$1\frac{1}{16}$	8662	2.6
$1\frac{1}{8}$	8663	2.6
$1\frac{1}{4}$	8664	2.6
$1\frac{3}{8}$	8665	2.6
$1\frac{1}{2}$	8667	2.8
$1\frac{5}{8}$	8668	2.9
$1\frac{3}{4}$	8669	3.3
$1\frac{7}{8}$	8671	3.5
2	8672	4.0



Ratchet Wrenches (Without Sockets)

No.	Length Inches	Approx. Wt. Lb.
2-BR	24	10
3-BR	36	23

Sockets for No. 3-BR Ratchet

Nominal Opening Size Across Flats Inches	Socket No.	Approx. Weight Lb.
2	8723	4.0
$2\frac{1}{4}$	8725	4.0
$2\frac{3}{8}$	8726	6.3
$2\frac{1}{2}$	8727	6.7
$2\frac{5}{8}$	8729	8.0
$3\frac{1}{8}$	8731	9.0

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG TORQUE WRENCHES

Extremely accurate torque settings are automatic with Armstrong Torque Wrenches, regardless of size or type. Each wrench was designed for maximum versatility and economy—one Armstrong torque wrench handles a wide range of fastening applications.

SCREWDRIVER TYPE

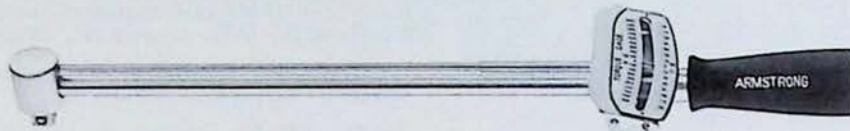


Screwdriver Type: Micrometer calibrated adjustments can be made easily by rotating handle to desired torque value and turning lock ring to "lock" position. Torque release and reset are automatic and continuous. Controls torque in both right-hand and left-hand rotation.

INCH OUNCE AND INCH POUND— $\frac{1}{4}$ " SQUARE DRIVE

No.	Type Head	Description	Range	Increments	Length	Wgt. Lbs.
NTS-1	Plain	Screwdriver, Adjustable	4-100 inch ounces	1 inch ounce	5½	.38
NTS-2	Plain	Screwdriver, Adjustable	2-30 inch pounds	½ inch pound	5½	.38

ROUND BEAM DEFLECTING TYPE



Round Beam Deflecting Type: This wrench has non-ratcheting plain type head. Direct reading torque scale is calibrated in both inch pounds and foot pounds—two wrenches in one. Heat treated pointer indicates when predetermined torque is reached. Floating pivot handle for utmost accuracy.

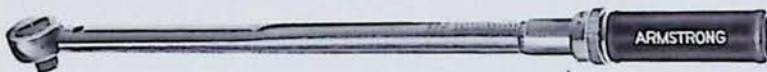
INCH POUND AND FOOT POUND— $\frac{3}{8}$ " SQUARE DRIVE

No.	Type Head	Description	Range Inch Lbs.	Increments	Range Foot Lbs.	Increments	Length	Wgt. Lbs.
FRB-3	Plain	Direct Reading Scale	0-300	12½ Inch Pounds	—	—	15	1.00
FRB-6	Plain	Direct Reading Scale	0-600	25 Inch Pounds	0-50	2½ ft. lb.	16	1.00

$\frac{1}{2}$ " SQUARE DRIVE

SRB-12	Plain	Direct Reading Scale	0-1200	50 Inch Pounds	0-100	5 ft. lb.	20	1.50
SRB-18	Plain	Direct Reading Scale	0-1800	50 Inch Pounds	0-150	5 ft. lb.	20	2.50
SRB-24	Plain	Direct Reading Scale	0-2400	100 Inch Pounds	0-200	10 ft. lb.	22	2.50

MICROMETER ADJUSTABLE TYPE



Micrometer Adjustable Type: Torque is indicated mechanically by the wrench with an audible "click" and a feel impulse followed by several degrees of free movement. No dial reading is necessary. The "click" and feel impulse signal the operator when the pre-set torque is reached. Control is absolute and totally dependable. By relaxing force on the handle, the torque wrench resets automatically, ready for another fastener.

INCH POUND— $\frac{3}{8}$ " SQUARE DRIVE

No.	Type Head	Description	Range	Increments	Length	Wgt. Lbs.
FTW-5	Ratchet	Calibrated, Adjustable	30- 250 inch pounds	1 inch pound	13.40	1.6
FTW-6	Ratchet	Calibrated, Adjustable	150-1000 inch pounds	5 inch pounds	14.70	1.8

$\frac{1}{2}$ " SQUARE DRIVE

STW-6	Ratchet	Calibrated, Adjustable	300-2500 inch pounds	10 inch pounds	20.60	2.5
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FOOT POUND— $\frac{3}{8}$ " SQUARE DRIVE

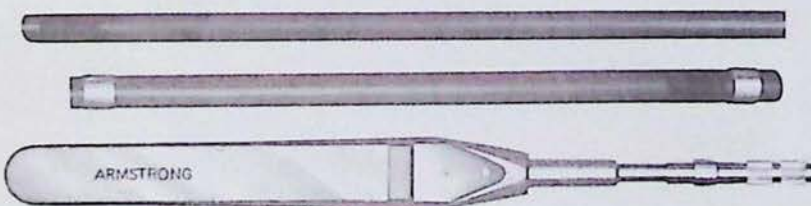
FTW-2	Ratchet	Calibrated, Adjustable	15- 100 foot pounds	½ foot pound	14.70	1.8
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$\frac{1}{2}$ " SQUARE DRIVE

STW-4	Ratchet	Calibrated, Adjustable	30- 250 foot pounds	1 foot pound	20.60	2.5
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$\frac{3}{4}$ " SQUARE DRIVE

HTW-6	Ratchet	Calibrated, Adjustable	100- 600 foot pounds	5 foot pounds	40.10	10.0
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1" SQUARE DRIVE

XTW-7	Plain	Calibrated, Adjustable	400-2000 foot pounds	5 foot pounds	*105	57.5
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*Overall length fully assembled with all handles and attachments. Entire set comes complete in metal carrying case.



This rugged 1" square drive wrench is designed for the big jobs. The wrench by itself can torque values to 500 foot pounds. The wrench with one handle extension can torque values to 1000 foot pounds. Both handle extensions on the wrench and one operator or both handle extensions with the tee adapter and two operators can torque values to 2000 foot pounds.



ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

"IMPACT SOCKETS"

For Power Wrenches Used in Production and Maintenance

ARMSTRONG ARMALLOY Power Drive Sockets are made from a selected grade of alloy steel, carefully heat treated; accurately machined to give proper fit and safe dependable service. Adaptable to most socket locking methods used on the various makes of power wrenches and can also be used on ARMSTRONG ARMALLOY Hand Socket Drive Parts where sockets of extra strength are needed and when corresponding drive sizes are available.

3/8"



Hexagon
6-Point Opening

"2" SERIES—3/8" SQUARE DRIVE



Extra Deep,
Hexagon
6-Point Opening

Nominal Opening Inches	Single Hexagon Openings							
	Finish—Rust Resistant							
	Standard Length				Extra Deep Length			
	No.	Nominal Dimensions		Weight Each, Lbs.	No.	Nominal Dimensions		Weight Each, Lbs.
		Length Overall, Inches	Depth Opening, Inches			Length Overall, Inches	Depth Opening, Inches	
5/16	A2-610	7/8	1/4	.05	12-610	1 1/2	1/4	.09
3/8	A2-612	1 1/16	5/16	.05	12-612	1 1/2	5/16	.09
7/16	A2-614	1 5/16	9/32	.05	12-614	1 1/2	9/32	.09
1/2	A2-616	1 5/8	21/64	.04	12-616	1 1/2	21/64	.09
9/16	A2-618	1	13/32	.06	12-618	1 1/2	13/32	.11
5/8	A2-620	1 1/8	29/64	.09	12-620	1 1/2	29/64	.13
11/16	A2-622	1 1/8	29/64	.11	12-622	1 1/2	29/64	.16
3/4	A2-624	1 3/8	3/16	.13	12-624	1 1/2	3/16	.19

"2" SERIES ACCESSORIES



Extension

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
2-103A	3	3/8	3/8	.09
2-106A	6	3/8	3/8	.35

ADAPTERS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
2-4A	1 3/8	1/2	3/8	.14



Adapter

UNIVERSAL JOINT

Male Square has Spring Plunger

No.	Approx. Wt., Lb.
2-140	.30



Universal Joint

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



1/2"

ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

"IMPACT SOCKETS"

For Power Wrenches Used in Production and Maintenance

"4" SERIES—1/2" SQUARE DRIVE



**Standard Length
Single Hexagon
Finish—Rust Resistant**



**Extra Deep Length
Single Hexagon
Finish—Rust Resistant**



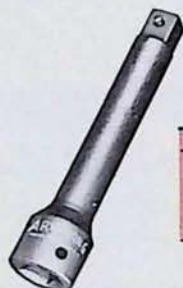
**Universal
Single Hexagon
Finish—Rust Resistant**



**Standard Length
Double Square (8-Point)
Finish—Rust Resistant**

Nominal Opening Inches	Single Hexagon Openings												Double Square (8-Point) Openings For Square Nuts			
	Standard Length				Extra Deep Length				Universal				Standard Length			
	NOMINAL DIMENSIONS				NOMINAL DIMENSIONS				NOMINAL DIMENSIONS				NOMINAL DIMENSIONS			
	No.	Length Overall, In.	Depth Opening, In.	Approx. Weight Lb.	No.	Length Overall, In.	Depth Opening, In.	Approx. Weight Lb.	No.	Length Overall, In.	Depth Opening, In.	Approx. Weight Lb.	No.	Length Overall, In.	Depth Opening, In.	Approx. Weight Lb.
3/8	A4-612	1 1/2	5/16	.14	14-612	3 1/4	5/16	.37	....	...	...	...	4-812	1 1/2	5/16	.14
7/16	A4-614	1 1/2	9/32	.17	14-614	3 1/4	9/32	.37	....	...	...	...	4-814	1 1/2	7/32	.17
1/2	A4-616	1 1/2	21/64	.16	14-616	3 1/4	21/64	.33	44-616	2 3/8	21/64	.33	4-816	1 1/2	1/4	.20
9/16	A4-618	1 1/2	13/32	.15	14-618	3 1/4	13/32	.30	44-618	2 7/16	13/32	.30	4-818	1 1/2	5/16	.25
1 9/32	A4-619	1 1/2	5/16	.16	....	...	...	...	....	...	...	...	....	...	...	...
5/8	A4-620	1 1/2	29/64	.19	14-620	3 1/4	29/64	.35	44-620	2 7/16	29/64	.35	4-820	1 1/2	21/64	.26
1 1/16	A4-622	1 1/2	29/64	.23	14-622	3 1/4	29/64	.44	44-622	2 5/8	29/64	.44	4-822	1 1/2	3/8	.33
3/4	A4-624	1 1/2	9/16	.28	14-624	3 1/4	9/16	.47	44-624	2 23/32	9/16	.47	4-824	1 1/2	7/16	.38
13/16	A4-626	1 1/2	7/16	.36	14-626	3 1/4	39/64	.57	44-626	2 27/32	39/64	.57	4-826	1 1/2	7/16	.43
7/8	A4-628	1 5/8	39/64	.40	14-628	3 1/2	39/64	.71	44-628	2 27/32	39/64	.71	4-828	1 1/2	1/2	.50
1 5/16	A4-630	1 3/4	23/32	.47	14-630	3 1/2	23/32	.81	44-630	2 15/16	23/32	.81	4-830	1 3/4	9/16	.67
1	A4-632	1 3/4	35/64	.62	14-632	3 1/2	35/64	.89	44-632	2 15/16	35/64	.89	4-832	1 3/4	35/64	.78
1 1/16	A4-634	2	13/16	.67	....	...	...	...	....	...	...	...	....	...	...	...
1 1/8	A4-636	2	13/16	.70	....	...	...	...	....	...	...	...	....	...	...	...
1 3/16	A4-638	2	7/8	.74	....	...	...	...	....	...	...	...	....	...	...	...
1 1/4	A4-640	2	29/32	.72	....	...	...	...	....	...	...	...	....	...	...	...

"4" SERIES ACCESSORIES



Extension

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
4-105A	5	1/2	1/2	.44
4-110A	10	1/2	1/2	.81

Set No. A4-66 BASIC SET OF POWER DRIVE SOCKETS



Standard Length
Single Hexagon Openings

Contents

Six most commonly used size openings, 1/2" Square Drive in sturdy metal carrying tray, No. CT-9, with handle. Approx. weight 1.7 lbs.

No.	Nom. Opening Inches
A4-616	1/4
A4-618	3/16
A4-620	3/8
A4-622	11/16
A4-624	3/4
A4-626	13/16

UNIVERSAL JOINT

Male Square has Spring Plunger

No.	Approx. Wt., Lb.
4-140	.40



Universal Joint

ADAPTERS

Male Squares have Spring Plungers

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Wt., Lb.
4-2B	1 1/2	1/2	3/8	.13
4-5B	1 11/16	1/2	5/8	.15
4-6B	1 3/4	1/2	*3/4	.16

*Has thru pin hole.



Adapter

HEXAGON—SQUARE SHANKS

No.	Length Inches	Square Male Inches	Hex Male Inches	Approx. Weight Lb.
4-33A	2 3/4	1/2	7/16	.19
4-35A	5	1/2	7/16	.73



Hexagon Square

FLIP SOCKET FOR WHEEL LUG NUTS AND BOLTS

Nominal Opening Inches	No.	Nominal Dimensions Length Overall, In.	Diameter In.	Approx. Wt., Lb.
3/4 & 13/16	4-2426	2 3/16	1 1/4	.48

See Chart, Page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

5/8"

"IMPACT SOCKETS"

For Power Wrenches Used in Production and Maintenance

"5" SERIES—5/8" SQUARE DRIVE



Standard Length

Single Hexagon Openings Finish—Rust Resistant				
Nominal Opening Inches	No.	NOMINAL DIMENSIONS		Approx. Weight Lb.
		Length Overall Inches	Depth Opening Inches	
1/2	A5-616	1 1/2	2 1/64	.31
9/16	A5-618	1 1/2	1 3/32	.26
5/8	A5-620	1 1/2	2 9/64	.26
11/16	A5-622	1 1/2	2 9/64	.26
3/4	A5-624	1 1/2	9/16	.25
13/16	A5-626	1 5/8	3 9/64	.25
7/8	A5-628	1 5/8	3 9/64	.32
15/16	A5-630	2	2 3/32	.44
1	A5-632	2	3 5/64	.51
1 1/16	A5-634	2	1 13/16	.58
1 1/8	A5-636	2	1 13/16	.65
1 1/4	A5-640	2	2 29/32	.85
1 5/16	A5-642	2	4 9/64	.86
1 3/8	A5-644	2 1/8	4 9/64	.91
1 7/16	A5-646	2 1/4	4 9/64	1.
1 1/2	A5-648	2 3/8	7/8	1.2

"5" SERIES ACCESSORIES

UNIVERSAL JOINT

Male Square has Spring Plunger



No.	Approx. Wt. Lb.
5-140	.60



ADAPTERS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
5-4A	1 7/8	5/8	*1 1/2	.35
5-6	2	5/8	†1 3/4	.43

*Has Spring Plunger.

†Has thru pin hole.



EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
5-106A	6	5/8	5/8	.98
5-110A	10	5/8	5/8	1.50

See chart, Page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



3/4"

ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

"IMPACT SOCKETS"

For Power Wrenches Used in Production and Maintenance

"6" SERIES—3/4" SQUARE DRIVE



Standard Length
Single Hexagon Openings

Finish—Rust Resistant



Standard Length
Double Square (8-Point) Openings

Finish—Rust Resistant



Extra Deep Length
Single Hexagon Openings

Finish—Rust Resistant

Nominal Opening Inches	No.	Length Overall Inches	Depth Opening Inches	Approx. Weight Lb.	No.	Length Overall Inches	Depth Opening Inches	Approx. Weight Lb.	No.	Length Overall Inches	Depth Opening Inches	Approx. Weight Lb.
1/2	6-616	1 3/4	1 3/32	.45								
9/16	6-618	1 3/4	1 1/16	.50								
5/8	6-620	1 3/4	2 9/64	.62	6-820	1 5/8	2 1/64	.56	16-620	3 1/4	2 9/64	1.1
11/16	6-622	1 3/4	2 9/64	.62					16-622	3 1/4	2 9/64	1.3
3/4	6-624	1 3/4	2 9/16	.62	6-824	1 3/4	2 1/16	.75	16-624	3 1/4	2 9/16	1.3
25/32	6-625	1 3/4	2 1/16	.70								
13/16	6-626	1 7/8	2 1/16	.70	6-826	1 7/8	2 1/16	.75	16-626	3 1/2	3 39/64	1.3
7/8	6-628	1 7/8	3 39/64	.70	6-828	1 7/8	2 1/2	.88	16-628	3 1/2	3 39/64	1.4
15/16	6-630	2	2 33/32	.70	6-830	1 7/8	2 9/16	.88	16-630	3 1/2	3 33/32	1.4
1	6-632	2	3 5/64	.70	6-832	2	3 5/64	.94	16-632	3 1/2	3 5/64	1.3
1 1/16	6-634	2	3 13/16	.81	6-834	2	5 5/8	.94	16-634	3 1/2	3 13/16	1.3
1 1/8	6-636	2 1/8	3 13/16	.90	6-836	2 1/8	2 1/32	1.00	16-636	3 1/2	3 13/16	1.4
1 1/4	6-638	2 1/8	3 7/8	1.00	6-838	2 1/8	2 1/32	1.37	16-638	3 1/2	3 7/8	1.5
1 1/2	6-640	2 1/8	3 29/32	1.00	6-840	2 1/8	3 3/4	1.50	16-640	3 1/2	3 29/32	1.9
1 5/8	6-642	2 1/4	4 9/64	1.13	6-842	2 1/4	4 9/64	1.80	16-642	3 1/2	4 9/64	1.9
1 3/4	6-644	2 1/4	4 9/64	1.19								
1 7/8	6-646	2 1/4	4 9/64	1.30	6-846	2 1/4	4 9/64	2.00	16-646	3 1/2	4 9/64	2.3
2	*6-648	2 3/8	5 7/8	1.44					*16-648	3 1/2	5 7/8	2.3
2 1/8	6-652	2 3/8	5 7/8	1.56					16-652	3 1/2	5 7/8	2.5
2 1/4	6-654	2 3/8	1	1.56								

*Can be used for servicing Standard Budd Wheels.

RETAINER PINS AND "O" RINGS FOR "6" AND "7" SERIES



Pins



"O" Rings

"O" Rings are made of synthetic rubber for resistance to oil and grease. Retainer Pins are made of selected steel—oil finished. Retainer Pins and "O" Rings are packaged separately, 25 of each to a box.

Sq. Drive Size, in.	Retainer Pin	Pin, Approx. Weight, Lb.	"O" Type Rings	Diam. Inches	Approx. Wt. Lb. Ring
3/4	Type C, 1 1/2"	.01	A-1	1 1/16	.01
1	Type D, 1 7/8"	.01	B-1	1 3/4	.02



Universal Joint



Adapter



Extension

"6" SERIES ACCESSORIES UNIVERSAL JOINT

Male Square has Thru Pin Hole

No.	Approx. Wt. Lb.
6-140	.80

ADAPTERS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
6-4	2 1/16	3/4	1 1/2	.60
6-5	2 1/8	3/4	5/8	.68
*6-7	2 1/2	3/4	1	.90

*Has thru pin hole.

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
6-107	7	3/4	3/4	1.50
6-110	10	3/4	3/4	2.44
6-113	13	3/4	3/4	3.00

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

"IMPACT SOCKETS"

For Power Wrenches Used in Production and Maintenance

"7" SERIES—1" SQUARE DRIVE



6-Point Opening

Standard Length
Single Hexagon Openings
Finish—Rust Resistant

Standard Length
Square (4-Point) and Double
Square (8-Point) Openings
Finish—Rust Resistant



8-Point Opening

Nominal Opening Inches	No.	NOMINAL DIMENSIONS		Approx. Weight Lb.	No.	NOMINAL DIMENSIONS		Approx. Weight Lb.
		Length Overall Inches	Depth Opening Inches			Length Overall Inches	Depth Opening Inches	
3/4	7-624	2 1/8	3/16	.75	*7-424	2 1/8	7/16	1.37
13/16	7-626	2 1/8	7/16	1.00	*7-426	2 1/8	7/16	1.37
7/8	7-628	2 3/8	39/64	1.00	*7-428	2 1/4	1 1/2	1.50
15/16	7-630	2 3/8	23/32	1.00	*7-430	2 1/4	3/16	1.60
1	7-632	2 1/4	35/64	1.25	*7-432	2 3/16	33/64	1.75
1 1/16	7-634	2 1/4	13/16	1.25	*7-434	2 3/16	5/8	1.75
1 1/8	7-636	2 3/8	13/16	1.25	*7-436	2 1/2	21/32	2.00
1 1/4	7-638	2 3/8	7/8	1.25	7-838	2 1/2	21/32	2.00
1 1/2	7-640	2 7/8	29/32	1.37	7-840	2 1/2	3/4	2.00
1 5/8	7-642	2 7/8	49/64	1.37	7-842	2 1/2	49/64	2.40
1 3/4	7-644	2 7/8	49/64	1.37	7-844	2 1/2	49/64	2.37
1 7/8	7-646	2 7/8	49/64	1.37	7-846	2 1/2	49/64	2.37
1 9/8	7-648	2 5/8	7/8	1.75	7-848	2 5/8	7/8	2.62
1 11/8	7-650	2 5/8	7/8	1.75	7-850	2 5/8	7/8	3.00
1 11/4	7-652	2 5/8	7/8	1.75	7-852	2 5/8	7/8	3.00
1 11/2	7-654	2 11/16	1	1.87	7-854	2 13/16	1	3.25
1 3/4	7-656	2 11/16	1	1.87	7-856	2 13/16	1	3.50
1 13/8	7-658	2 3/4	1	2.50	7-858	2 13/16	1	3.50
1 7/8	7-660	2 7/8	1 1/32	2.50	7-860	3	1 1/32	3.75
1 15/8	7-662	2 7/8	1 1/32	3.00	7-862	3 1/16	1 1/32	4.30
2	7-664	2 15/16	1 1/32	3.25	7-864	3 1/16	1 1/32	4.50
2 1/16	7-666	3 1/16	1 13/64	3.25	7-866	3 1/4	1 13/64	4.80
2 1/8	7-668	3 1/8	1 13/64	3.25	7-868	3 1/4	1 13/64	5.00
2 1/4	7-670	3 1/8	1 13/64	3.75	7-870	3 1/4	1 13/64	5.15
2 1/2	7-672	3 1/4	1 13/16	3.75	7-872	3 1/16	1 13/16	5.68
2 5/8	7-674	3 1/16	1 13/16	4.00	7-874	3 1/16	1 13/16	5.75
2 3/4	7-676	3 1/16	1 13/16	4.00	7-876	3 1/2	1 13/16	6.50
2 7/8	7-678	3 1/2	1 23/64	4.25				
2 15/8	7-680	3 1/2	1 23/64	4.75				
2 9/8	7-682	3 1/2	1 23/64	5.25				
2 5/4	7-684	3 11/16	1 1/2	5.50				
2 11/8	7-686	3 11/16	1 1/2	5.40				
2 3/4	7-688	3 11/16	1 1/2	6.00	7-888	3 7/8	1 1/2	7.25
2 13/8	7-690	3 7/8	1 39/64	6.25				
2 7/4	7-692	3 15/16	1 39/64	5.75				
2 15/8	7-694	3 15/16	1 39/64	6.50				
3	7-696	4 1/16	1 29/32	6.75				
3 1/8	7-6100	4 1/8	1 29/32	7.50				
3 1/4	7-6104	4 1/8	1 29/32	7.50				
3 3/8	7-6108	4 1/2	1 39/64	8.0				
3 1/2	7-6112	4 1/2	1 39/64	8.8				
3 5/8	7-6116	4 1/2	1 39/64	8.8				

*These sockets have single square (4-point) openings.

"7" SERIES ACCESSORIES

ADAPTERS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
7-6	3	1	3/4	1.75



Adapter

EXTENSIONS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
7-107	7	1	1	3.5



Extension

For Retainer Pins and "O" Rings to fit above Sockets, Adapters and Extensions, see page 92.

UNIVERSAL JOINT

Male Square has Thru Pin Hole



Universal Joint

No.	Approx. Wt. Lb.
7-140	2.20



1 1/2"

ARMSTRONG ARMALLOY POWER DRIVE SOCKETS

"8" SERIES—1 1/2" SQUARE DRIVE

"IMPACT SOCKETS"

Standard Length
Single Hexagon Openings
Finish—Rust Resistant



Nos. 8-642
to 8-660



No. 8-664

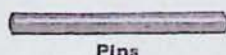


Nos. 8-670
to 8-6112

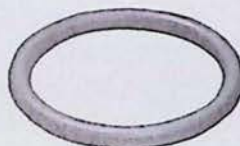
Nominal Opening Inches	No.	Length Overall Inches	Depth Opening Inches	Approx. Wt., Lb.
1 5/16	8-642	3 1/8	49/64	4.00
1 3/8	8-644	3 1/8	49/64	4.30
1 7/16	8-646	3 1/8	49/64	4.40
1 1/2	8-648	3 1/8	7/8	4.40
1 5/8	8-652	3 1/8	7/8	4.50
1 11/16	8-654	3 1/8	1	4.40
1 13/16	8-658	3 1/4	1 1/32	5.00
1 7/8	8-660	3 1/4	1 3/32	4.40
2	8-664	3 3/4	1 3/32	5.60
2 3/16	8-670	3 7/8	1 13/64	6.60
2 1/4	8-672	4	1 5/16	6.60

Nominal Opening Inches	No.	Length Overall Inches	Depth Opening Inches	Approx. Wt., Lb.
2 3/8	8-676	4 1/8	1 5/16	7.60
2 1/2	8-680	4 1/4	1 25/64	7.90
2 9/16	8-682	4 1/4	1 25/64	7.90
2 5/8	8-684	4 1/4	1 1/2	8.30
2 3/4	8-688	4 3/8	1 1/2	8.80
2 7/8	8-692	4 1/2	1 19/32	9.50
2 15/16	8-694	4 1/2	1 39/64	9.50
3	8-696	4 5/8	1 23/32	9.50
3 1/8	8-6100	4 5/8	1 23/32	11.40
3 3/8	8-6108	4 5/8	1 59/64	11.00
3 1/2	8-6112	4 5/8	1 59/64	12.40

RETAINER PINS AND "O" RINGS FOR "8" SERIES



Pins



"O" Rings

"O" Rings are made of synthetic rubber for resistance to oil and grease.

Retainer Pins are made of selected steel—oil finished.

Retainer Pins and "O" Rings are packaged separately, 25 of each to a box.

Sq. Drive Size, In.	Retainer Pin	Pin, Approx. Weight, Lb.	"O" Type Rings	Diam. Inches	Approx. Wt. Lb., Ring
1 1/2	Type E, 2 7/8" Long	.02	C-1	2 7/8	.03

See chart, page 115, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

ARMSTRONG SCREW DRIVERS AND SCREW DRIVER SETS

ARMSTRONG Screw Drivers have clear plastic handles with white flutes designed to provide comfortable gripping surfaces. Special finish Chrome Vanadium steel blades are tempered for proper degree of hardness, tips are precision cross ground.

REGULAR ROUND BLADE



No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
3104	4	1/4	1/4	.19
3106	6	5/16	5/16	.28
3108	8	3/8	3/8	.48
3110	10	7/8	7/8	.58

PHILLIPS



No.	Blade Length Inches	Stock Size Inches	Phillips No.	Weight Each Lbs.
*3252	1 1/2	1/4	2	.09
3253	3	1/8	0	.05
3254	3	3/16	1	.13
3256	4	1/4	2	.19
3258	6	5/16	3	.28
3260	8	3/8	4	.48

*Denotes stubby

SQUARE BLADE



No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
*3050	1 1/4	1/4	1/4	.05
3052	4	3/16	3/16	.14
3054	4	1/4	1/4	.20
3056	6	1/4	1/4	.23
3058	4	5/16	5/16	.30
3060	6	5/16	5/16	.35
3062	8	5/16	5/16	.41
3064	8	3/8	3/8	.52
3066	12	3/8	3/8	.72

*Denotes stubby

ROUND ELECTRICIANS' (CABINET) STYLE BLADE



No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
3152	3 1/2	1/8	1/8	.06
3154	3	3/16	3/16	.13
3156	6	3/16	3/16	.14
3158	8	3/16	3/16	.17



SET NO. RG4C—In Cardboard Box

Contains 1 each Nos. RG28, RG30, RG32 and RG34 Phillips Screwdrivers. Approx. Wt., 2.07 lbs.

SET NO. RG5R—In Plastic Roll

Contains 1 each Nos. RG38, RG40, RG42, RG44, and RG46 Square Shank Screwdrivers in Plastic Roll No. R-33. Set No. RG5C in Cardboard Box. Approx. Wt., 2.32 lbs.



ARMSTRONG Screw Drivers with Cushion Grip handles provide excellent twisting strength plus comfortable gripping surfaces. Easy on the hand yet gives non-slip turning.

REGULAR ROUND BLADE



No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
RG14	4	1/4	1/4	.19
RG16	6	5/16	5/16	.33
RG18	8	3/8	3/8	.53

PHILLIPS



No.	Blade Length Inches	Stock Size Inches	Phillips No.	Weight Each Lbs.
*RG28	1 1/2	1/4	2	.09
RG30	3	3/16	1	.08
RG32	4	1/4	2	.19
RG34	6	5/16	3	.30

*Denotes stubby

SQUARE BLADE



No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
*RG38	1 1/2	1/4	1/4	.15
RG40	4	1/4	3/16	.19
RG42	6	5/16	5/16	.40
RG44	8	3/8	3/8	.61
RG46	10	3/8	3/8	.70

*Denotes stubby

ROUND ELECTRICIANS' (CABINET) STYLE BLADE



No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
RG50	3	3/16	3/16	.10
RG51	6	3/16	3/16	.14
RG52	6	1/4	1/4	.18

SET NO. 3001—In Plastic Roll

Contains 1 each Nos. 3050, 3052, 3054, 3060, 3064 and 3066 Square Shank Screwdrivers in Plastic Roll No. R-31. Set No. 3001C in Cardboard Box. Approx. Wt., 2.32 lbs.



SET NO. 3002 In Cardboard Box

Contains 1 each Nos. 3050, 3054, 3060, 3064 and 3066 Square Shank Screwdrivers. Approx. Wt., 2.07 lbs.

SET NO. 3003—In Plastic Roll

Contains 1 each Nos. 3252, 3254, 3256, 3258 and 3260 Phillips Screwdrivers in Plastic Roll No. R-33. Set No. 3003C in Cardboard Box. Approx. Wt., 1.4 lbs.





ARMSTRONG ARMALLOY PLIERS — Drop Forged Steel

ARMSTRONG Pliers are drop forged from selected grade alloy steel. They are carefully heat-treated to ensure strength and dependability.

Lineman's Pliers



Powerful leverage for strong gripping, cutting or twisting. Machined blades match perfectly. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2006	6	.50
2007	7	.69
2008	8	.88
2009	9	1.05

Heavy Duty Diagonal Cutter



Easy cutting due to long handles and short perfectly matched jaws. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2010	7	.50

Diagonal Cutter Pliers



Lightweight yet has ample cutting power. Cutters are evenly matched for better close cutting jobs. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2013	4	.16
2014	4½	.25
2015	5	.32
2016	6	.38
2017	7	.50

Needle Nose Pliers without Cutter



Precise joint rivet placement assures jaw alignment so necessary for needle nose work. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2020	4	.15
2021	6	.31

Needle Nose Pliers with Cutter



Each plier is individually tested for strength and cutting ability. Valuable tool for telephone or radio work. Long nose will reach into restricted places to coil or loop wire. Great care is taken to assure perfect jaw alignment. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2025	5	.23
2026	6	.31
2027	7	.37

Long Slim Needle Nose



Will pick up, hold, loop and bend wire in areas that are inaccessible to ordinary tools. Jaws are perfectly aligned and tempered. 2½" inside jaw length. ⅜" wide serrated tip. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2030	6	.31

Bent Needle Nose



Nose gets into those tight places that can't be reached by conventional pliers. Tempered handles and jaws prevent bending or breaking. Even when twisted out of shape they will return to normal when pressure is released. 1½" reach tapered to ⅜" tip width. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2032	6	.31

Duck Bill with Cutter



Strong thin jaws. 2¾" inside length. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2035	6	.38

Duck Bill Without Cutter



Strong thin jaws have 2¾" inside length. Fine serrated jaws grip without chewing up work. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2037	6	.38

Long Short Nose Duck Bill



Fine serrations inside the jaws provide positive gripping without chewing up work. Essential for wiring and assembly. 1¾" inside jaw length, ⅜" tip width. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2038	8	.31



ARMSTRONG ARMALLOY PLIERS — Drop Forged Steel

ARMSTRONG Pliers are drop forged from selected grade alloy steel. They are carefully heat-treated to ensure strength and dependability.

End Cutting Nippers



Lightweight, yet strong with carefully matched sharp cutting blades for close cuts. Ample throat clearance. Head and jaws ground bright. Orange plastic grips.

Catalog Number	Length Inches	Weight Pounds
2045	4½	.16
2046	7	.63

Lock Ring Pliers



Right angle jaw tips are knurled on outside surface to hold rings securely and prevent slipping. Tension spring closes jaws. Chrome plated. 1½" maximum jaw opening. 2½" between handles.

Catalog Number	Length Inches	Weight Pounds
2055	9	.50

Power-Groove Ignition Pliers



1519-AV

1519-A

No. 1519-AV Power-Groove Ignition Pliers are ideal for delicate jobs such as wiring, switchboard, radio and panel work. Power-Groove construction holds jaws parallel at the most important openings. Chrome plated with orange plastic grips.

No. 1519-A Power Groove Ignition pliers has plain handles. Finished in black-oxide with face ground bright.

Catalog Number	Length Inches	Capacity Inches	Weight Pounds
1519-AV	5	½	.10
1519-A	5	½	.10

Power-Groove Pliers



Armstrong Power-Groove pliers hold jaws parallel and securely in most important positions and take the strain off the bolt. Sharp jaw teeth are milled deep to give good gripping power. Drop forged alloy steel. Bright chrome plated with orange plastic grips.

Catalog Number	Length Inches	Capacity Inches	Weight Pounds
2050	6½	1	.39
1520-AV	10	1½	.69
2051	12	2½	1.63

Combination Slip Joint Pliers



Two position slip joint adjustment for wide gripping capacity. Fine teeth at end of jaws and large deep cut teeth at curved section provide maximum contact for gripping different surfaces. Cutter at base of the jaws cuts most wire and nails easily. Drop forged steel finished in chrome plate.

Catalog No.	Length Inches	Capacity Inches	Approx. Wt. Lbs.
5	5	¾	.25
6	6	1	.44
8	8	1¼	.63
10	10	1½	1.13

Convertible Snap Ring Pliers



Internal

External

For production jobs, inspection, maintenance, or service work changing from internal to external ring applications is an easy, quick operation. Simply loosen the thumb screw and screw it into the adjacent tapped hole, finger tight. Pliers have black-oxide finish with comfortable red plastic handles.

Catalog Number	Dia. Tips Inches	Length Inches	Weight Pounds
2078	.038	5¾	.12
2079	.070	8	.31

Snap Ring Plier Set

Three basic tip diameters will handle a wide variety of rings, both external and internal for shafts or bores. Tip selection is made on the basis of the hole diameter in the big end of the ring. They are carefully heat treated for maximum toughness and wear, and stay firmly in place, regardless of use. Pliers are made from heat treated steel with zinc plating and have long wearing oil resistant vinyl-plastisol grips.



Set No. 2070
Contents

No. 2076. Internal pliers for compressing ring for insertion in a bore. Length without tips 6½".

No. 2077. External pliers for expanding ring to fit over a shaft. Length without tips 6¼".

No. 2073. Eight pairs of color coded interchangeable tips set complete in plastic box. Approx. wgt. .63 lb.

NOTE: No. 2076 and No. 2077 pliers are not sold individually. They are only sold as part of this set.

Snap Ring Plier Tip Set No. 2073

Contents

Eight pairs of color coded interchangeable tips:

Two pairs 90° angle, .035 dia. Black tips.

Two pairs straight, .045 dia. Silver tips.

Two pairs 45° angle, .045 dia. Silver tips.

Two pairs straight, .060 dia. Gold tips.

Complete in plastic box. Approx. wgt. .06 lb.

NOTE: Plastic grips as illustrated on these pliers are designed for comfort only, and are not intended as insulation against electrical shock.



ARMSTRONG HAMMERS

BALL PEIN HAMMERS



HICKORY HANDLE

ARMSTRONG Ball Pein Hammers are drop forged from selected steel, carefully heat treated for extra strength and durability. Handles are made of second growth white hickory, are clear lacquered and securely wedged into the head.

No.	Length Inches	Weight Class	Approx. Weight, Lb.
7-0	10 $\frac{1}{4}$	2 oz.	.25
5-0	10 $\frac{1}{2}$	4 oz.	.38
3-0	11 $\frac{3}{4}$	8 oz.	.64
2-0	12 $\frac{5}{8}$	12 oz.	1.08
0	13 $\frac{7}{8}$	1 lb.	1.38
2	15 $\frac{3}{8}$	1 $\frac{1}{2}$ lbs.	1.94
4	15 $\frac{1}{2}$	2 lbs.	2.36
6	16	2 $\frac{1}{2}$ lbs.	3.06

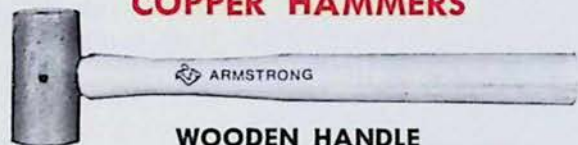


FIBERGLASS HANDLE

Armstrong Ball Pein Hammers with fiberglass handles and neoprene grips absorb shock yet will not bend or break under normal use. Polyester resin reinforced by continuous fiberglass strands assures extra strong handle.

Catalog No.	Length Inches	Weight Class	Approx. Weight, Lb.
FG 8	12 $\frac{5}{8}$	8 oz.	1.06
FG12	13	12 oz.	1.31
FG16	13	1 lb.	1.56
FG24	14 $\frac{5}{8}$	1 $\frac{1}{2}$ lbs.	2.12
FG32	14 $\frac{3}{4}$	2 lbs.	2.50

COPPER HAMMERS



WOODEN HANDLE

Soft, yet tough enough for driving bushings and gears without marring work. Handles are made of high grade second growth hickory, attached to heads with steel wedges.

Catalog No.	Length Inches	Head Weight, Lb.	Approx. Weight, Lb.
15CH	13 $\frac{7}{16}$	1.50	2.00
20CH	13 $\frac{1}{2}$	2.00	2.25

RUBBER Mallet



WOODEN HANDLE

Solid Rubber head prevents damage. Excellent for garages, finishing shops, etc., where surface finish is important. Head measures 3 $\frac{7}{8}$ " long and 2 $\frac{1}{16}$ " diameter. Hardwood handle is 12 $\frac{3}{4}$ " long.

Catalog Number	Length, Inches	Approximate Weight, Lb.
2RM	15 $\frac{3}{8}$	2.00

SOFT FACED HAMMERS

Armstrong Soft Faced Hammers are excellent for working wherever pounding without marring is required. Heads are designed to hold interchangeable tips of varying degrees of hardness—from supersoft to medium hard. Tapered tips thread directly into solid head and seat in head wells by friction fit. They are color coded to indicate hardness and are resistant to chipping, flaking, and mushrooming. Handle shafts are made with continuous, parallel fiberglass strands reinforced with polyester plastic. Non-slip handle grips help absorb shock. Bodies & Tips are shipped unassembled.



Hammer Bodies Only:

No.	Weight Class	Head		Handle Length	Wgt. Ea.
		Diameter	Length		
100-H	5 oz.	1	2	11 $\frac{3}{8}$	.25
105-H	8 oz.	1	2	11 $\frac{3}{8}$	.38
150-H	$\frac{3}{4}$ lb.	1 $\frac{1}{2}$	2 $\frac{3}{8}$	13	.50
153-H	1 lb.	1 $\frac{1}{2}$	4 $\frac{1}{2}$	13	.94
155-H	1 $\frac{1}{4}$ lb.	1 $\frac{1}{2}$	2 $\frac{3}{8}$	13	.94
200-H	1 $\frac{1}{4}$ lb.	2	2 $\frac{1}{2}$	13	.81
205-H	2 lb.	2	2 $\frac{1}{2}$	13	1.6
207-H	3 lb.	2	3 $\frac{7}{8}$	15	2.6
250-H	2 lb.	2 $\frac{1}{2}$	3 $\frac{1}{4}$	15	1.6
255-H	4 lb.	2 $\frac{1}{2}$	3 $\frac{1}{4}$	13	3.1
300-H	3 $\frac{1}{2}$ lb.	3	3 $\frac{3}{4}$	14	2.4
305-H	6 lb.	3	3 $\frac{3}{4}$	14	5.1

Tips Only:

No.	Diameter	Hardness	Color	Wgt. Ea., lbs.
T-10-SS	1	Super Soft	Gray	.05
T-10-M	1	Medium	Red	.05
T-10-T	1	Tough	Green	.05
T-10-N	1	Med. Hard	Cream	.05
T-15-SS	1 $\frac{1}{2}$	Super Soft	Gray	.14
T-15-M	1 $\frac{1}{2}$	Medium	Red	.14
T-15-T	1 $\frac{1}{2}$	Tough	Green	.14
T-15-N	1 $\frac{1}{2}$	Med. Hard	Cream	.14
T-20-SS	2	Super Soft	Gray	.27
T-20-M	2	Medium	Red	.27
T-20-T	2	Tough	Green	.27
T-20-N	2	Med. Hard	Cream	.27
T-25-SS	2 $\frac{1}{2}$	Super Soft	Gray	.44
T-25-M	2 $\frac{1}{2}$	Medium	Red	.44
T-25-T	2 $\frac{1}{2}$	Tough	Green	.44
T-25-N	2 $\frac{1}{2}$	Med. Hard	Cream	.44
T-30-SS	3	Super Soft	Gray	.66
T-30-M	3	Medium	Red	.66
T-30-T	3	Tough	Green	.66
T-30-N	3	Med. Hard	Cream	.66

Conversion Chart for Tip Selection

Type	Super Soft	Medium	Tough	Medium Hard
Soft Rubber	SS			
Wood		M		N
Rubber		M		
Hard Wood			T	
Lead			T	N
Plastic			T	
Rawhide		M	T	N



ARMSTRONG ARMALLOY ADJUSTABLE WRENCHES

Selected Alloy Steel



CHROME PLATED

Regular and Locking Style

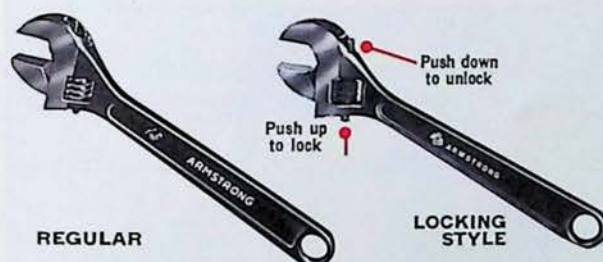
ARMALLOY Adjustable Wrenches are light weight with thin tapered jaws for use in inaccessible places.

ARMALLOY Adjustable Wrenches are drop forged from a selected grade of alloy steel.

To operate locking pin on Locking Style Adjustable Wrenches, push up to lock, push down to unlock.

All parts are accurately machined, carefully heat treated. Chrome plate finish with handle satin finish and head highly polished. Individually packaged.

Regular Style No.	Locking Style No.	Size Inches	Capacity	THICKNESS HEAD		Approx. Wt. Lb.
				Tip of Jaws, Inches	Extreme, Inches	
4	.....	4	1/2	9/64	5/16	.09
6	6CL	6	3/4	7/32	3/8	.25
8	8CL	8	1	17/64	1/2	.50
10	10CL	10	1 1/8	23/64	19/32	.81
12	12CL	12	1 1/16	15/32	23/32	1.44
15	15CL	15	1 3/4	19/32	31/32	3.00
18	.....	18	2 1/16	23/32	1 1/16	5.00
24	.....	24	2 1/2	7/8	1 3/8	10.00



BLACK FINISH

Regular and Locking Style

ARMALLOY Adjustable Wrenches are light weight with thin tapered jaws for use in inaccessible places.

ARMALLOY Adjustable Wrenches are drop forged from a selected grade of alloy steel.

To operate locking pin on Locking Style Adjustable Wrenches, push up to lock, push down to unlock.

All parts are accurately machined, carefully heat treated. Economical black finish with handle satin finish for firm safe grip. Individually packaged.

Regular Style No.	Locking Style No.	Size Inches	Capacity	THICKNESS HEAD		Approx. Wt. Lb.
				Tip of Jaws, Inches	Extreme, Inches	
4B	.....	4	1/2	9/64	5/16	.09
6B	6BL	6	3/4	7/32	3/8	.25
8B	8BL	8	1	17/64	1/2	.50
10B	10BL	10	1 1/8	23/64	19/32	.81
12B	12BL	12	1 1/16	15/32	23/32	1.44
15B	15BL	15	1 3/4	19/32	31/32	3.00
18B	.....	18	2 1/16	23/32	1 1/16	5.00

SCREW EXTRACTORS



Armstrong Screw Extractors combine great strength and a secure grip for quick and easy removal of broken screws, bolts, studs or other threaded forms. When driven into a drilled hole in the broken unit, the sharp edges grip the wall of the hole without chewing up the object. Gradually tapered flutes prevent binding and wedging. Threaded forms with right or left hand threads can be removed. Special alloy steel for long life. Each size packed five to a box.

No.	Size of Small End	Size of Shank	Ex-treme Lgth.	For Use on Screw Sizes	Size Drill to Use	Mini-mum Depth of Hole	For Use on Pipe Sizes	Wgt. Ea., Lb.
3310	1/8"	3/16"	2 5/16"	1/4", 5/16"	1/8"	3/8"	—	.01
3312	11/64"	3/16"	2 5/8"	3/8"	3/16"	1/2"	—	.02
3314	13/64"	1/4"	2 7/8"	7/16"	15/64"	1 1/2"	1/8"	.04
3316	19/64"	5/16"	3"	1/2", 9/16"	5/16"	1 1/2"	1/4"	.06
3318	11/32"	3/8"	3 1/4"	5/8"	3/8"	5/8"	3/8"	.10
3319	27/64"	7/16"	3 7/8"	3/4"	15/32"	1 1/16"	—	.17
3319A	1/2"	1 1/2"	4 1/2"	7/8"	9/16"	1 1/16"	1/2"	.23
3319B	19/32"	5/8"	4 7/8"	1", 1 1/8"	21/32"	3/4"	1 1/2"	.40
3319C	23/32"	3/4"	5 3/8"	1 1/4", 1 3/8"	13/16"	3/4"	3/4"	.65

SCREW EXTRACTOR SET NO. 3447-R



Consists of five sizes of extractors—Nos. 3310, 3312, 3314, 3316 and 3318—and vinyl plastic roll. Wt., .26 Lb.

Contents

One	Description
3310	For 1/4" & 5/16" bolts
3312	For 3/8" bolts
3314	For 7/16" bolts
3316	For 1/2" & 9/16" bolts
3318	For 5/8" bolts

NO. 3460 SCRAPER



Blade is slightly curved for efficient scraping—allows tip to lie flat against work. 1/4" forged shank is flared out to 15/16" width at tip. Blade reaches places wider scrapers can't. Can be resharpened many times. Shank end is anchored into plastic handle. Overall length is 9 1/2".



ARMSTRONG CHISELS AND PUNCHES

ARMSTRONG Punches and Chisels are made of alloy steel. Accurately heat treated and finished in chrome plate with faces and heads polished.

Pin Punches



No.	Point Diameter Inches	Stock Size, Inches	Length, In.	Wt. Ea. Lbs.
3352	$\frac{3}{32}$	$\frac{1}{4}$	$4\frac{1}{2}$	.08
3354	$\frac{1}{8}$	$\frac{5}{16}$	$4\frac{3}{4}$	.08
3356	$\frac{5}{32}$	$\frac{5}{16}$	5	.10
3358	$\frac{3}{16}$	$\frac{3}{8}$	$5\frac{1}{4}$	.16
3360	$\frac{1}{4}$	$\frac{7}{16}$	$5\frac{3}{4}$	.21
3362	$\frac{5}{16}$	$\frac{1}{2}$	$6\frac{1}{4}$	.25

Long Taper Punches



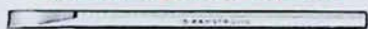
No.	Point Diameter Inches	Stock Size, Inches	Length, In.	Wt. Ea. Lbs.
3372	$\frac{5}{32}$	$\frac{3}{8}$	8	.23
3374	$\frac{3}{16}$	$\frac{1}{2}$	9	.46
3376	$\frac{1}{4}$	$\frac{5}{8}$	11	.71
3378	$\frac{5}{16}$	$\frac{5}{8}$	11	1.00

Cold Chisels



No.	Width of Cut, Inches	Stock Size, Inches	Length, In.	Wt. Ea. Lbs.
3402	$\frac{1}{4}$	$\frac{1}{4}$	$4\frac{1}{2}$	.08
3404	$\frac{5}{16}$	$\frac{1}{4}$	$4\frac{1}{2}$	.13
3406	$\frac{3}{8}$	$\frac{5}{16}$	5	.13
3408	$\frac{1}{2}$	$\frac{1}{16}$	6	.25
3410	$\frac{5}{8}$	$\frac{1}{2}$	$6\frac{1}{2}$	.33
3412	$\frac{3}{4}$	$\frac{5}{8}$	7	.60
3414	$\frac{7}{8}$	$\frac{3}{4}$	8	.92
3416	1	$\frac{7}{8}$	8	1.33

Extra Long Cold Chisels



No.	Width of Cut, Inches	Stock Size, Inches	Length, In.	Wt. Ea. Lbs.
3491	$\frac{5}{8}$	$\frac{1}{2}$	11	.67
3492	$\frac{3}{4}$	$\frac{5}{8}$	12	1.00
3496	$\frac{7}{8}$	$\frac{3}{4}$	14	1.60
3499	1	$\frac{7}{8}$	16	2.30

Solid Punches



No.	Point Diameter Inches	Stock Size, Inches	Length, In.	Wt. Ea. Lbs.
3382	$\frac{3}{32}$	$\frac{1}{4}$	$4\frac{1}{2}$	.08
3384	$\frac{1}{8}$	$\frac{5}{16}$	$4\frac{3}{4}$	.13
3386	$\frac{5}{32}$	$\frac{3}{8}$	5	.15
3388	$\frac{3}{16}$	$\frac{7}{16}$	$5\frac{1}{2}$	.31
3390	$\frac{1}{4}$	$\frac{1}{2}$	6	.31

Set No. 3440-R

One each Punches, Nos. 3354, 3356, 3358, 3360, 3362, 3384, 3386, 3388, 3390, 3372, 3374, 3376, 3396 and 3398 in Plastic Roll No. R-37. Approx. Wt. 4.00 lbs.



Set No. 3442-R

One each Nos. 3406, 3408, 3410, 3412 and 3414 Cold Chisels in Plastic Roll No. R-35. Approx. Wt. 2.50 lbs.



Rivet Buster



ARMSTRONG Rivet Busters are specifically designed for cutting off hardened rivet heads. Much simpler than using a chisel.

No.	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3420	$\frac{5}{8}$	12	.94

Prick Punches



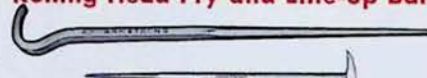
No.	Point Diameter Inches	Stock Size, Inches	Length, In.	Wt. Ea. Lbs.
3322	...	$\frac{3}{8}$ Hex	$4\frac{1}{2}$	.29

Center Punches



No.	Point Diameter Inches	Stock Size, Inches	Length, In.	Wt. Ea. Lbs.
3395	...	$\frac{1}{4}$ Hex	$4\frac{1}{2}$	.08
3396	...	$\frac{3}{8}$	5	.29
3398	...	$\frac{1}{2}$	6	.38

Rolling Head Pry and Line-up Bars

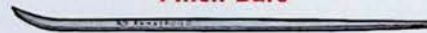


3451

3452 and 3453

No.	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3451	$\frac{1}{2}$	15	.95
3452	$\frac{1}{2}$	16	1.25
3453	$\frac{5}{8}$	21	2.80

Pinch Bars



No.	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3430	$\frac{1}{2}$	15	.81
3431	$\frac{5}{8}$	22	1.85

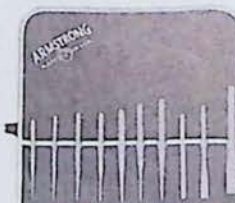
Set No. 3444-R

Contents one each of Punches Nos. 3354, 3356, 3358, 3360, 3362, 3384, 3386, 3388, 3390, 3372, 3374, 3376, 3396 and 3398 plus 1 each Chisels Nos. 3406, 3408, 3410, 3412 and 3414 in Plastic Roll No. R-39. Approx. Wt. 6.50 lbs.



Set No. 3448-R

Contents one each of Punches Nos. 3396, 3352, 3354, 3358, 3382, 3384, 3388, and Chisels Nos. 3402, 3406, 3408 in Plastic Roll No. R-8. Approx. Wt. 3.50 lbs.



Set

No. 3446-R

One each of Punches, Nos. 3352, 3354, 3356, 3358, 3360, 3362 in Plastic Roll No. R-10. Approx. Wt. 1.75 lbs.





PIPE TOOLS

ARMSTRONG Pipe Tools are preferred by tool users who demand the very best quality and service efficiency in the tools they buy and use. Every ARMSTRONG Pipe Tool is designed to make work go faster and easier; each has an indefinable "feel" of quality and efficiency that is immediately recognized by the user.

Though many ARMSTRONG Pipe Tools look similar to other tools, each has its own refinements and features that give it a distinct advantage over ordinary tools.

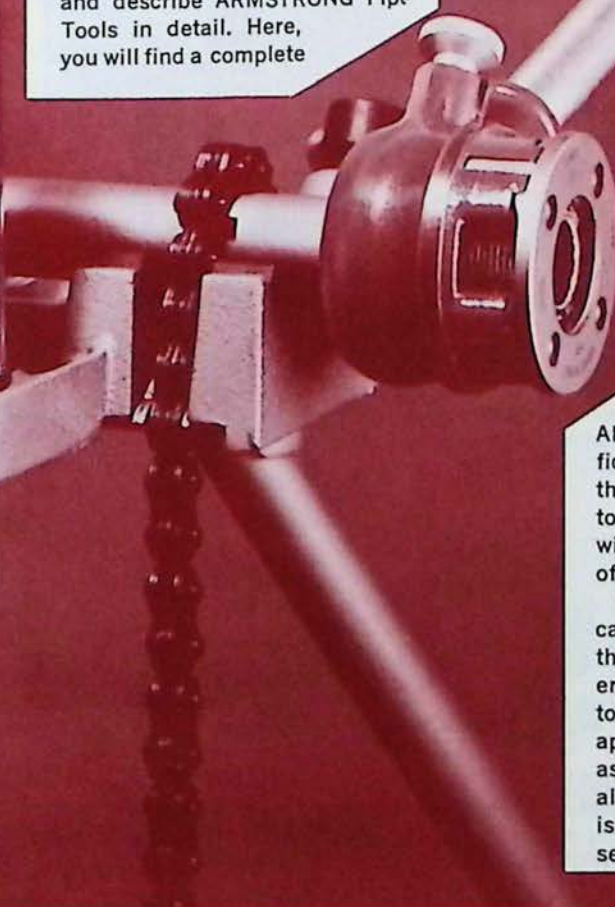
When men who use pipe tools every day have a choice, they almost invariably choose ARMSTRONG Tools because they know they can depend on them to provide the service and durability they need.

The following pages illustrate and describe ARMSTRONG Pipe Tools in detail. Here, you will find a complete

range of Threaders, Solid Dies and Threading Sets, Adjustable Dies and Threading Sets, Receding Threaders, Pipe Cutters, Reamers, Pipe Vises, Vise Stands, Pipe Wrenches, Chain Pipe Tongs and Tubing Tools.

You can buy and use ARMSTRONG Pipe Tools with confidence because they are sold with the guarantee that if any tool fails to give complete satisfaction, it will be repaired or replaced free of charge.

Your ARMSTRONG Distributor carries a representative stock of these tools for immediate delivery. He can help you choose the tools best suited to your particular application. Ask him for any assistance you may require. As always, your Industrial Distributor is anxious to be of service to you.





ARMSTRONG DROP HEAD RATCHET THREADERS

Especially well suited for threading in close quarters. Choose the set that best fills your needs from this popular selection of drop head ratchet threading tools. Each set features rugged, yet light weight ratchets. Die heads and collars are finished in baked-on red enamel. Handles are made of galvanized pipe. Die heads slip smoothly into collars, won't fall out

FEATURES:

INTERCHANGEABILITY—All the parts in these Armstrong Drop Head Threading Sets interchange with like parts in the Ridge Tool line of drophead threading sets.

EXTENDED RANGE—use of No. 2122-A adapter increases range of No. 22-R Ratchet to accommodate $\frac{1}{8}$ " to 2" die heads.

SUPER FINISHED RING on die heads has smooth mat-

during use, but may be released by a pull of the ratchet pawl. The ratchet mechanism works easily and is instantly reversible.

Dies are machined from alloy steel, precision ground, and carefully heat treated to assure easy thread cutting and long life. Sets are available with NPT dies, as listed in tables.

satin finish, achieved by glass bead blasting for greater resistance to rust and discoloration.

BEAUTIFULLY FINISHED metal cases for sets — provide an individual receptacle for each head. Cases have piano hinges — for extra strength.

POSITIVE SEATING of heads in Ratchet — carefully machined die heads insure better retention in ratchet.

For best results, and to increase die life, always use **ARMSTRONG ARMOIL** thread cutting oil when threading pipe, conduit and bolts.

20 SERIES

Pipe—Conduit



This small, streamlined ratchet is especially handy in close quarters. Collar is rugged, yet light weight. Furnished with NPT ($\frac{1}{8}$ " through 1") dies.

Packed in cardboard box. Steel case C-42 is available for this series. See table below for dimensions.

21 SERIES

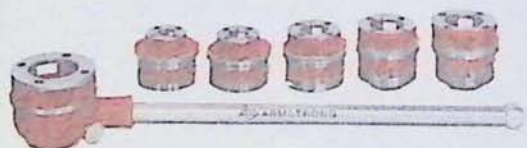
Pipe—Conduit



21 Series has the most frequently used range of sizes. The sets listed on the table are furnished with NPT dies from $\frac{1}{8}$ " through $1\frac{1}{4}$ ". Packed in cardboard box. Steel case C-44 is available though—see table below for dimensions.

22 SERIES

Pipe—Conduit



22 Series is our best 2" capacity drop head threader, with range of $\frac{1}{2}$ " to 2" in NPT dies. Sets available, as listed in tables, in cardboard box. Sets can also be made available in sturdy metal cases if desired. See table on this page for dimensions of metal case C-46.

By using No. 2122-A adapter and 21 Series dies heads this threader can be adapted down to $\frac{1}{8}$ " pipe.

Sets with NPT Dies for Pipe and Conduit

Series No.	Set No. In Cardboard Box	Capacity, Pipe & Conduit, Size, Inches	Approx. Wt., Lbs. In Cardboard box
20	20-2	$\frac{1}{2}$, $\frac{3}{4}$	6.00
	20-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	7.50
	20-3A	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	8.00
	20-4	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	12.25
	20-5	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	14.60
	20-6	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	16.00
21	21-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	13.00
	21-4	$\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	16.33
	21-4A	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	15.00
	21-5	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	18.50
	21-6	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	20.60
	21-7	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	22.60
22	22-4	1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	28.25
	22-5	$\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	34.87
	22-6	$\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	39.15
	*22-9AD	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	43.00

*Set No. 22-9AD consists of one each of the following: No. H214, H218, H2112, H2216, H2224, H2232, H2240, H2248, H2264 Die Heads, No. 2122-A Adapter and No. 22-R Ratchet.

Sets with NC Bolt Dies

Series No.	Set No.	For Threading Bolts, Dia., Inches	Approx. Wt., Lb.
20	20-7BC	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1	13.5
	20-10BC	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{16}$, $\frac{1}{2}$, $\frac{3}{16}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1	19.5



2122-A ADAPTER

2122-A Adapter fits into 22-R ratchet collar and accommodates all series 21 die heads, $\frac{1}{8}$ " through $1\frac{1}{4}$ ", thus extending the range of the 21 and 22 series to $\frac{1}{8}$ " to 2". Other advantages—less weight—less expense.

STEEL CASES FOR DROP HEAD THREADER SETS

Catalog No.	For Series	Dimensions, Inches
C42	20	$20\frac{7}{8} \times 7 \times 4\frac{5}{16}$
C44	21	$27 \times 7\frac{9}{16} \times 4\frac{5}{16}$
C45	OD	$21 \times 5\frac{1}{8} \times 3\frac{1}{2}$
C46	22	$30\frac{7}{8} \times 4\frac{3}{4} \times 9$

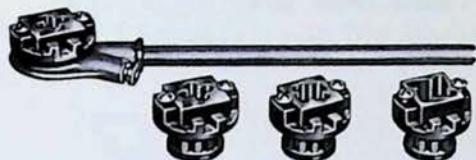


ARMSTRONG DROP HEAD RATCHET THREADERS

For best results, and to increase die life, always use ARMSTRONG ARMOIL thread cutting oil when threading pipe, conduit and bolts.

OD SERIES

1/8"–1"



Uses standard 2" x 2" solid dies as listed on page 104 of this catalog. Die may be quickly reversed for threading "close up". Combines the economy of the solid die with the convenience of the drop-head ratchet threader.

Sets With NPT Dies for Pipe and Conduit

Set No.	Capacity, Pipe & Conduit, Size, In.	Approx. Wt., Lb.
O-D-4A*	3/8, 1/2, 3/4, 1	18.25
O-D-6	1/8, 1/4, 3/8, 1/2, 3/4, 1	14.62

*Furnished in Steel Case No. C-45, described on page 102. For extra dies, dieheads, ratchets, see below.

NPT DIES



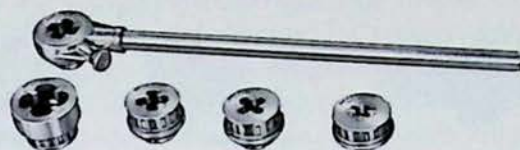
For Pipe and Conduit Size, In.	Cat. No.	Fits	
		Armstrong Drophead Threader Series	Ridge Drophead Threader Series
1/8	D-204	20, 21	00-R, 111-R,
1/4	D-208	20, 21	00-R, 111-R,
3/8	D-2012	20, 21	00-R, 111-R,
1/2	D-2016	20, 21, 22	00-R, 111-R, 12-R
3/4	D-2024	20, 21, 22	00-R, 111-R, 12-R
1	D-2032	20, 21, 22	00-R, 111-R, 12-R
1 1/4	D-2140	21, 22	111-R, 12-R
1 1/2	D-2248	22	12-R,
2	D-2264	22	12-R,

NC BOLT DIES AND DIE HEADS

For Bolt, Dia., In.	Die Only	Diehead Complete
1/4	D-208A	H-208A
3/16	D-2010A	H-2010A
3/8	D-2012A	H-2012A
1/2	D-2014A	H-2014A
5/8	D-2016A	H-2016A
3/4	D-2018A	H-2018A
7/8	D-2020A	H-2020A
1	D-2024A	H-2024A
	D-2028A	H-2028A
	D-2032A	H-2032A

GS SERIES

3/8"–1 1/4"



Dies are cast as an integral part of the die head. This results in a cost reduction, and combines the advantages of the drop head ratchet threading tool (as described on page 102) with those of the solid die—ease and economy of die replacement, and fixed die segments that cannot come out of alignment. Furnished in cardboard box.

Sets With NPT Dies for Pipe and Conduit

Set No.	Capacity, Pipe & Conduit, Size, In.	Approx. Wt., Lb.
GS-3	1/2, 3/4, 1	8.00
GS-4	3/8, 1/2, 3/4, 1	9.75
GS-5	3/8, 1/2, 3/4, 1, 1 1/4	12.40

For extra dieheads, ratchets, see below.

NPT DIE HEADS



For Pipe and Conduit Size, In.	For Series No.				
	*20	†21	‡22	OD	GS
1/8	H204	H214	—	E-OD4	—
1/4	H208	H218	—	E-OD8	—
3/8	H2012	H2112	—	E-OD12	E-GS12
1/2	H2016	H2116	H2216	E-OD16	E-GS16
3/4	H2024	H2124	H2224	E-OD24	E-GS24
1	H2032	H2132	H2232	E-OD32	E-GS32
1 1/4	—	H2140	H2240	—	E-GS40
1 1/2	—	—	H2248	—	—
2	—	—	H2264	—	—

*Fits Ridge Ratchet No. 00-R.

†Fits Ridge Ratchet No. 111-R.

‡Fits Ridge Ratchet No. 12-R.

DROP HEAD RATCHETS



Series No.	Ratchet No.	Approx. Wt., Lb.
20	20-R	3.00
21	21-R	4.00
22	22-R	4.50
OD	OD-R	1.75
GS	GS-R	3.25

ARMSTRONG SOLID DIES AND THREADING SETS



Solid dies cannot come out of adjustment, can be quickly reversed for "close up" threading, and are inexpensive. ARMSTRONG dies start easily and cut smoothly. They are made from solid blocks of alloy steel, with the teeth formed at the proper angle for best cutting rake and "backed-off" to give clearance from the point of the cutting teeth. Shape of the body gives ample chip clearance.

STOCKS FOR SOLID DIES



No. 0. 1



No. 51AR, 52AR



No. 51BR, 52BR

Die Stocks Nos. 0, and 1, together with appropriate solid dies, afford the most economical means for threading pipe, conduit, and bolts. ARMSTRONG Ratcheting Solid Die Stocks Nos. 51AR, 51BR, 52AR, and 52BR combine the economy of the solid die with the convenience of an instantly reversible ratchet for use in "tight quarters." These stocks can be used with a power drive.

Stock No.	For Die Dimensions, In.	Approx. Wt., Lb.	Stock No.	For Die Dimensions, In.	Approx. Wt., Lb.
0	2 x2	2.75	51BR	2½x2½	8.50
1	2½x2½	5.25	52AR	4 x4	15.50
51AR	2½x2½	8.75	52BR	4 x4	15.10

SOLID PIPE DIES—R. H. NPT

For Stock No.	Die Dimen., Inches	Approx. Wt., Lb.	For Threading Pipe and Conduit, Size, Inches											
			$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2					
0	2x2	.38	D-04	D-08	D-012	D-016	D-024	D-032*						
1, 51AR, 51BR	$2\frac{1}{2} \times 2\frac{1}{2}$	1.00	D-14	D-18	D-112	D-116	D-124	D-132						
52AR, 52BR	4x4	3.38				D-216	D-224	D-232	D-240	D-248	D-256			

*For OD Series drop head threader only.

SOLID BOLT DIES—R.H., NC

For Stock No.	Die Dimen- Inches	Approx. Wt., Lb.	For Threading Bolts, Diameter, Inches									
			$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	
1	$2\frac{1}{2} \times 2\frac{1}{2}$	1.00	D-18A	D-112A	D-116A	D-120A	D-124A	D-128A	D-132A	D-136A	D-140A	

ARMSTRONG ADJUSTABLE DIES AND THREADING SETS



ARMSTRONG adjustable dies start easily and cut smoothly. Their correct cutting angle, backed-off teeth, correct throat angle, and ample chip clearance ensure a good thread every time. These

alloy steel dies can be used with either of the two styles of ARMSTRONG adjustable die stocks, standard or ratcheting type, and are interchangeable with similar dies of standard dimensions.

ADJUSTABLE PIPE DIES IN NPT

For Stock No.	Die Width, Inches	Approx. Wt. Lb.	For Threading Pipe or Conduit, Size, Inches									
			$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	
$1\frac{1}{2}$ -A	$1\frac{1}{8}$	.15	D-15A4	D-15A8	D-15A12	D-15A16	D-15A24					
2-A	$1\frac{1}{4}$	.75	D-2A4	D-2A8	D-2A12	D-2A16	D-2A24	D-2A32				
3-A	$1\frac{3}{4}$	2.38				D-3A16	D-3A24	D-3A32	D-3A40	D-3A48	D-3A66	

ADJUSTABLE DIES IN SETS WITH STOCKS

With NPT Dies for Pipe and Conduit

Stock No.	Set No.		Capacity, Pipe & Conduit, Size, Inches	Approx. Wt., Lb.	
	With Ring Guides	With Adjustable Guide		With Ring Guides	With Adjustable Guide
2-A	2-A-3	—	1½, ¾, 1	12.00	—
	2-A-4	—	¾, ¾, ¾, 1	13.00	—
	2-A-5	—	¾, ¾, ¾, ¾, 1	14.00	—
	2-A-6	2-A-6A	¾, ¾, ¾, ¾, ¾, 1	15.00	13.50
2-BR	2-BR-3	—	1½, ¾, 1	10.00	—
	2-BR-4	—	¾, ¾, ¾, 1	11.00	—
	2-BR-5	—	¾, ¾, ¾, ¾, 1	12.00	—
	2-BR-6	—	¾, ¾, ¾, ¾, ¾, 1	13.00	—
3-BR	3-BR-3	—	1½, 1½, 2	25.25	—
	3-BR-4	—	1, 1½, 1½, 2	27.50	—
	3-BR-5	—	¾, 1, 1½, 1½, 2	29.50	—
	3-BR-6	3-AR-5	¾, ¾, 1, 1½, 1½, 2	32.50	28.50

SOLID DIES IN SETS WITH STOCKS

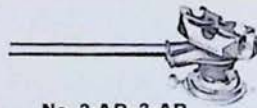
Each set is individually packed in a cardboard box and includes stock and dies as listed, plus appropriate ring guides.



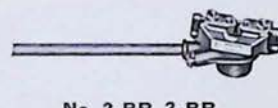
Sets with NPT Dies for Pipe and Conduit

Stock No.	Die Size In.	Set No.		Capacity Pipe & Conduit Size, In.	Approx. Wt., Lb.
		With Ring Guides	With Adjustable Guide		
1	2½x2½	1-5 1-6		¼, ⅜, ½, ¾, 1 ⅝, 1¼, ⅜, ½, ¾, 1	13.00 14.00
51	2½x2½	51BR3 51BR4 51BR4A 51BR5 51BR6 51BR7		½, ¾, 1 1½, ¾, 1, 1¼ ¾, 1½, ¾, 1 ¾, 1½, ¾, 1, 1¼ 1½, ¾, 1½, ¾, 1, 1¼ 1½, ¾, 1½, ¾, 1, 1¼ ⅝, 1¼, ⅜, ½, ¾, 1, 1¼	12.50 13.75 13.50 15.00 16.00 17.50
51	2½x2½		51AR3 51AR4 51AR4A 51AR5 51AR6 51AR7	½, ¾, 1 1½, ¾, 1, 1¼ ¾, 1½, ¾, 1 ¾, 1½, ¾, 1, 1¼ 1½, ¾, 1½, ¾, 1, 1¼ ⅝, 1¼, ⅜, ½, ¾, 1, 1¼	13.50 14.75 14.50 15.50 16.50 18.00
52	4x4	52BR3 52BR4 52BR5 52BR6		1¼, 1½, 2 1, 1¼, 1½, 2 ¾, 1, 1¼, 1½, 2 ½, ¾, 1, 1¼, 1½, 2	21.00 23.50 26.25 29.50
52	4x4		52AR3 52AR4 52AR5 52AR6	1¼, 1½, 2 1, 1¼, 1½, 2 ¾, 1, 1¼, 1½, 2 ½, ¾, 1, 1¼, 1½, 2	21.50 24.00 26.50 30.00

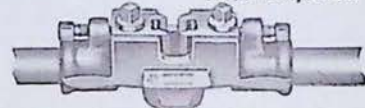
STOCKS FOR ADJUSTABLE DIES



No. 2-AR, 3-AR



No. 2-BR, 3-BR



No. 1-A, 2-A, 3-A

STOCKS

Die Stock No.	For Die Width, In.	Approx. Wt., Lb.	Die Stock No.	For Die Width, In.	Approx. Wt., Lb.
1½-A	1½	4.00	3-BR	2½	17.00
2-A	1½	5.75	2-AR	1½	7.38
3-A	2½	12.25	3-AR	2½	17.25
2-BR	1½	8.50			

ADJUSTABLE GUIDES

Guide is instantly adjustable to size desired and locks to properly center pipe, conduit, or bolt for threading.

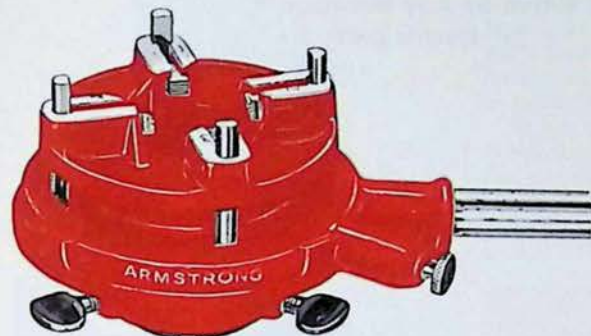


No.	For Stock No.	Capacity Pipe, Sizes, Inches	Approx. Wt., Lb.
292	2-A.2-BR	$\frac{1}{8}$ to 1	1.63
293	3-A.3-BR	$\frac{1}{2}$ to 2	5.00

ARMSTRONG RECEDING THREADERS

NO. 1-R RECEDING RATCHET THREADER

For Pipe or Conduit, 1 to 2-Inch



Save time and money with this simple ratcheting threader. Uses ring guides and four sets of dies to thread 1", 1 1/4", 1 1/2", 2" pipe and conduit (NPT tapered threads). Threader body is malleable iron finished in red baked enamel. Handles are galvanized pipe. Adjustable for cutting oversize or undersize threads, and takes 2-inch couplings for threading 2-inch close nipples. Lead screw facilitates easy threading; simplicity of design provides a cost saving. Boxed complete with guides and four sets of alloy steel dies, as described on page 106.

NO. 2 GEARED RECEDING PIPE THREADER

For Pipe or Conduit, 2 1/2 to 4-Inch



This Threader operates through reduction gears which enable one man to thread 2 1/2 to 4-inch pipe with ease. The body is malleable iron finished in red baked enamel. Handles are galvanized pipe. Each threader comes complete in a wooden box with four sets of chasers for threading 2 1/2", 3", 3 1/2", and 4" pipe, one each 2 1/2", 3", 3 1/2" and 4" guide, and a set screw wrench. Note: No. HA-500A ratchet for operating the No. 2 threader must be ordered separately.

No.	Capacity, Pipe & Conduit, Size, In.	Approx. Wt., Lb.
1-R	1, 1 1/4, 1 1/2, 2	20
2	2 1/2, 3, 3 1/2, 4	95

For best results, and to increase die life,
always use ARMSTRONG ARMOIL Thread Cutting Oil
when threading Pipe, Conduit and Bolts.



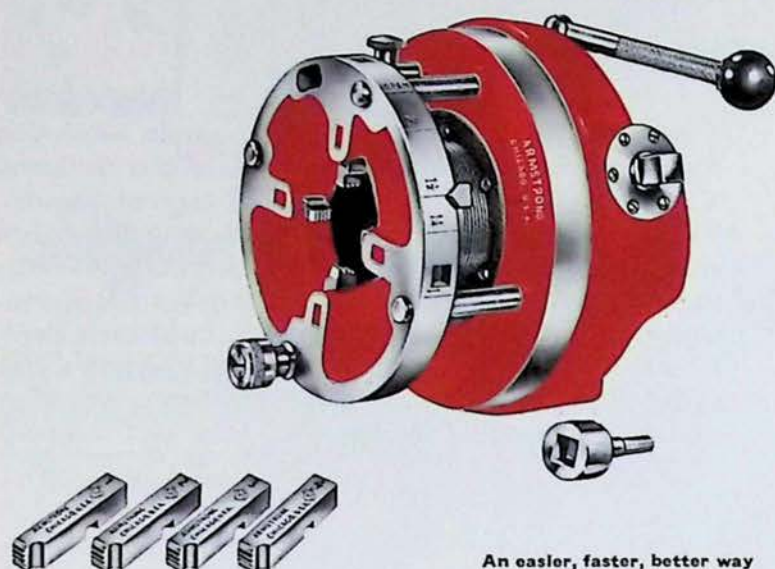
NO. HA-500A RATCHET HANDLE

This drop forged steel ratchet for use with No. 2 geared receding threader has easy ratcheting action. Its extra length (31" overall) provides additional leverage. This ratchet also fits 4" capacity threaders of other makes. Approx. wt., 5 lbs.

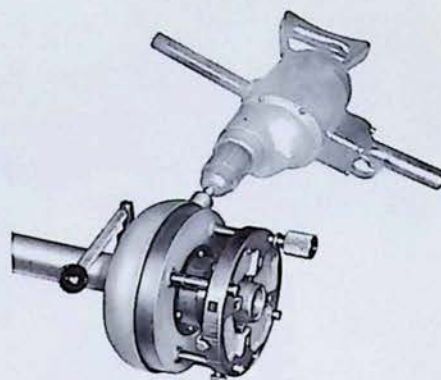


ARMSTRONG PORTABLE POWER PIPE THREADERS

PORTABLE POWER PIPE THREADER



Driven by Any Standard
 $\frac{1}{2}$ " Electric Drill



An easier, faster, better way
to thread 1" to 2" pipe

Here is a truly unique tool. It's light weight (only 26 lbs.), threads 1" to 2" pipe with one set of dies, is powered by your standard $\frac{1}{2}$ " electric drill (air drills work too), and can be used without a vise.

You can easily carry the 165 threader to any job to thread 1" to 2" pipe quickly and effortlessly. You can thread installed pipe without having to remove it, and since there is no ratchet handle to get in the way, you can easily thread pipe in trenches or tight corners.

This tool is of sturdy construction, compact in design. All moving parts run on anti-friction bearings for ease of operation and long life. The pipe holder, unique in design, has positive gripping action and is easily adjusted. Dies are quickly adjusted to desired pipe size by a cam plate index lever. Each tool is furnished in a wooden box complete with one set of high speed dies and drive adapter.

No. 165 cuts NPT (tapered) threads for pipe and conduit.

No.	Capacity, In.	Approx. Wt., Lb.
165	Pipe. 1-2	26

For best results, and to
increase die life, always
use **ARMSTRONG ARMOIL**
thread cutting oil when
threading pipe, conduit,
bolts, etc.

ARMSTRONG DIES FOR RECEDING THREADERS



Dies for No. 2 Geared Threader



Dies for No. 1-R Threader



Dies for No. 165 Threader

Dies for Nos. 1-R and 2 threaders are made from special alloy steel, and each is furnished on a wire clip. All dies are carefully hobbed and backed off for clearance. Each die segment is hardened, drawn, tempered, and plainly marked with size and sequence number. Each set of dies is individually tested before leaving our factory.

Dies for No. 165 threader are made of high speed steel and are packaged one set to a box. All dies are carefully hobbed and backed off for clearance. Each die segment is hardened, drawn, tempered, and plainly marked with size and sequence number. Each set of dies is individually tested before leaving our factory.

Cat. No., Dies, Set	For Pipe, Size, In.	Approx. Wt., Lb.	Fit These Makes and Models			
			ARMSTRONG	Tokido	NYE	Ridge
D-1R32 D-1R40 D-1R48 D-1R64	1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2	1.5	1-A (Disc.) 1-R	1-C	1-R	—
D-280 D-296 D-2112 D-2128	$2\frac{1}{2}$ 3 $3\frac{1}{2}$ 4	2.0	2	2 2BR, 2BJ	2	—
D-165	1 thru 2	1.5	165	—	51-B	65 Series



ARMSTRONG ARMOIL® THREAD CUTTING OIL



ARMOIL, both clear and dark, in steel cans. Pint, quart, gallon, and 5-gallon sizes. Also available in 55 gallon drums.

ARMSTRONG ARMOIL thread cutting oil is scientifically compounded and stabilized for the proper balance of sulphur and chlorine, and is available both clear and dark.

ARMOIL is not like ordinary oil—it is especially prepared to cool as you cut. It reduces heat and friction, prevents welds from forming on die teeth, assures a good clean thread every time, and prolongs die life.

Always apply ARMOIL to the pipe before starting your die—and keep oiling the pipe and dies as you continue to thread.

Note: No shaking required. Not to be used as a lubricating oil.



ARMOIL, both clear and dark, in ½-pint and pint plastic bottles. Simply squeeze the bottle to squirt the oil—right down to the last drop. Long, tapered spout directs oil flow accurately. Bottle is made of heavy duty, unbreakable, see-through plastic, resistant to all common oils and chemicals. Bottle cap has screw closure to prevent leakage. Throw it away when it's empty, or re-fill it just like an oil can.

No.		Description	Approx. Wt., Lb.
Clear	Dark		
CO-2	CO-22	1 Pt. Can	1.25
CO-4	CO-24	1 Qt. Can	2.50
CO-6	CO-26	1 Gal. Can	8.25
CO-8	CO-28	5 Gal. Can	42.00
CO-12	CO-32	55 Gal. Drum	457.00
BO-2	BO-12	½ Pt. Plastic Btl.	.63
BO-4	BO-14	1 Pt. Plastic Btl.	.60

ARMSTRONG PIPE TAPS



These Pipe Taps for cutting NPT (tapered) thread are made of highest quality tool steel, carefully heat treated to give maximum cutting efficiency and long service. For threading ½" to 2" pipe.

No.	For Pipe Size, In.	Approx. Wt., Lb.
PT-4	1/8	.06
PT-8	1/4	.13
PT-12	3/8	.20
PT-16	1/2	.27
PT-24	3/4	.47
PT-32	1	.83
PT-40	1 1/4	1.27
PT-48	1 1/2	2.13
PT-64	2	3.38

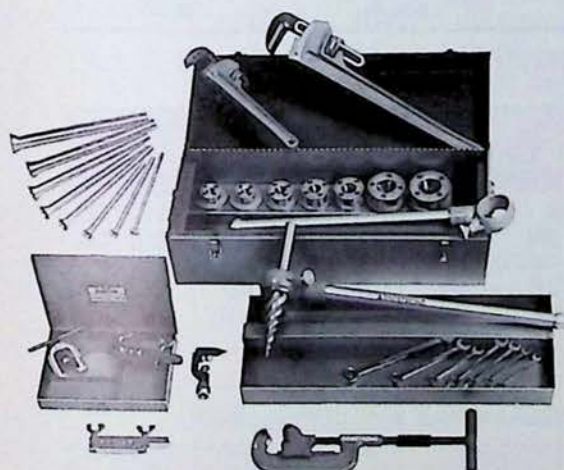
PIPE TOOL SET NO. P-23C

Pipe and Tubing Tools

This set includes a broad assortment of hand tools commonly required for pipe and tubing jobs. Tools are provided for threading, cutting, reaming and turning pipe from ½" up to 1 ¼"; for working tubing from ½" up to 1 ½". All tools fit neatly into specially fitted case No. C-47. This case (dimensions given on page 81) is of sturdy welded steel construction with rugged latches and finished in attractive two-tone gray. Case has steel handles at either end for carrying, and includes No. CT-7 Tote Tray. Space is ample to provide for additional small tools.

Contents

1 Each, No.	Description	Capacity, Inches	1 Each, No.	Nominal Open. In. (Both Heads)
21-7	Drop Head Threader Set	1/8 to 1 1/4	Combination Flare Nut Wrenches	
2-T	Pipe Cutter	1/8 to 2		
R-1172	Pipe Reamer	1/8 to 2	1312	3/8
14-M	Pipe Wrench	1/4 to 2	1314	7/16
24-M	Pipe Wrench	1/4 to 3	1316	1 1/2
7090	Tube Flaring and Cutting Set	1/8 to 3/4	1318	2 1/16
TB-8	Tube Bender Set	1/8 to 1 1/8	1320	5/8
CT-7	Steel Tote Tray	1/4 to 7/8	1322	1 1/16
C-47	Steel Case	25 1/4 x 10 x 3	1324	3/4
		26 1/2 x 10 1/2 x 7		





ARMSTRONG PIPE CUTTERS

Select the exact tool—or tools—you need from this broad line of pipe cutters, each style with its own important features and advantages. Every ARMSTRONG Pipe Cutter is quality-designed, quality-built, and factory tested to ensure accurate tracking and efficient cutting.

HEAVY DUTY



No. 1-T, 2-T

Only ARMSTRONG offers all these important features in these basic, necessary tools:

- Drop forged frame means less weight, greater strength.
- Recessed cutter wheel for greater wheel protection.
- Back edge of frame rests against power drive arm, prevents damage to screw when cutter is used on a power drive.
- Knurled sleeve for quicker adjustment.
- Pins and rollers are carefully machined of tool steel, then hardened—rollers eliminate burr raised by cutting action.
- Extra large handle permits a good grip, plenty of leverage.
- Rollers and cutter wheels are interchangeable, facilitating conversion to a three-wheel cutter for “close-quarters” work.

Finished in red baked enamel. Individually boxed.

No.	Capacity, Pipe, Size, In.	Approx. Wt., Lb.
1-T	$\frac{1}{8}$ to $1\frac{1}{4}$	5.75
2-T	$\frac{1}{8}$ to 2	6.25

HEAVY DUTY—WIDE ROLL



No. 2-TA

This tool is especially designed for use with power drives. It has the same important features as the No. 2-T, plus an elongated pin that supports two additional rollers. These rollers provide a greater bearing surface and thereby prevent cocking or twisting of the cutter when used on a power drive.

No.	Capacity, Pipe, Size, In.	Approx. Wt., Lb.
2-TA	1/8 to 2	7.00

HEAVY DUTY



No. 4-A, 6-A

Frame is of malleable iron. A second handle allows two-man use of this tool. Cutter wheels and rollers are interchangeable, facilitating conversion to a three-wheel cutter for "close-quarters" work. Finished in red baked enamel. Individually boxed.

No.	Capacity, Pipe, Size, In.	Approx. Wt., Lb.
4-A	2 to 4	20.00
6-A	4 to 6	26.25

ARMSTRONG KNIFE BLADE PIPE CUTTER WHEELS



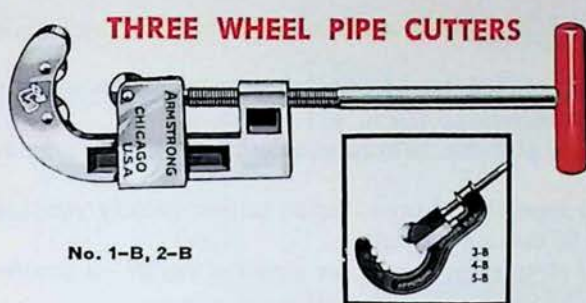
Accurately machined from selected alloy tool steel, heat treated, hardened, oil tempered. These are thin, sharp cutter wheels that cut fast, yet hold their edge well. Packaged ten to a box. They are standard in all ARMSTRONG Pipe Cutters and can also be used in cutters made by other manufacturers, as listed.

All ARMSTRONG pins and rollers are made of tool steel, carefully machined and hardened, and will interchange with similar parts of other makes. Order extra pins and rollers by description.

Wheel No.	Approx. Weight, Lb.	Firs						Wheel No.	Approx. Weight, Lb.	Firs		
		Armstrong	Ridge	Nye	Trimo	Toledo Beaver	Reed			Armstrong	Barnes	Erie
2T	.05	1-T	1	1N	1T	2	1-1	1-B	.03	1-B	1	1B
		2-T	2	2N	2T	202	1-3	2-B	.04	2-B	2	2B
		2-TA	1A	2NP		102PD	1-4	3-B	.05	3-B	3	3B
			2A			2X	2-1	4-B	.10	4-B	4	4B
			201			20	2-3	5-B	.15	5-B	5	5B
			202			A Mach.	2-4					
			360			B Mach.	PDC2					
4A	.04	4-A	3S	4N				1S	.04	1-S		1S
			3									
			4S					2S	.05	2-S		2S
			4					3S	.06	3-S		3S, 4S
6AW		6-A	6S							4-S		
										5-S		5S



ARMSTRONG PIPE CUTTERS



No. 1-B, 2-B

While heavy duty pipe cutters may be converted from one- to three-wheel tools, a three-wheel "Barnes Type" cutter in your tool kit will eliminate the need for time-consuming interchange of cutter wheels and rollers. Bodies are malleable iron. No. 1-B and 2-B bodies are burnished bright and clear lacquered. No. 3-B, 4-B and 5-B bodies are finished in red baked enamel as are handles of all sizes.

No.	Capacity, Pipe Size, Inches	Approx. Wt., Lb.
1-B	$\frac{1}{8}$ to 1	3.00
2-B	$\frac{1}{2}$ to 2	5.25
3-B	$1\frac{1}{2}$ to 3	8.00
4-B	$2\frac{1}{2}$ to 4	12.00
5-B	4 to 6	20.00

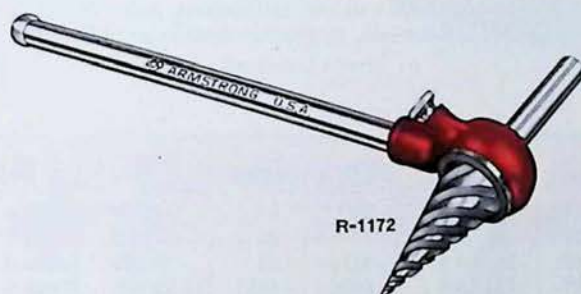
PIVOT-ARM PIPE CUTTERS



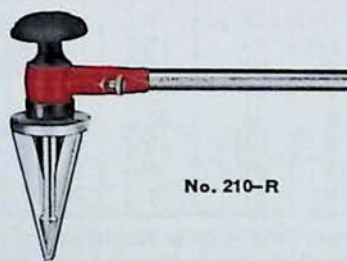
Simplicity in the design of these "Saunders Type" Pipe Cutters means a cost savings for you. Ideal for use where working space is not limited, such as on power drives. Bodies are of malleable iron. Bodies and handles are finished in red baked enamel. Hardened screw point bears on hardened tool steel insert in rear of pivoting arm, for longer wear, better service.

No.	Capacity, Pipe Size, Inches	Approx. Wt., Lb.
1-S	$\frac{1}{8}$ to 1	3.0
2-S	1 to 2	6.0
3-S	2 to 3	11.5
4-S	$2\frac{1}{2}$ to 4	15.0
5-S	4 to 6	23.0

ARMSTRONG RATCHET REAMERS



R-1172



No. 210-R

General Service Ratchet Reamers for removing internal burrs caused by cutting pipe. The unique spiral flutes of R-1172 Armstrong ratchet reamer feed the tool into the pipe with no pushing effort required and the edges cut the burr to a uniform depth. There is no binding or gouging. Thus, reaming is easier, faster and cleaner. R-1172 will accommodate series No. 21 threading die heads (listed on page 103), and thus may be used as a threader in an emergency.

No. 210 insert-type reamer contains three specially ground insert blades that may—if ever necessary—be removed and reground or replaced.

The ratchet mechanism of both these tools is instantly reversible. Finished in red baked enamel. Handles are galvanized pipe.

Complete Ratchet Reamer Units

Reamer Unit No.	Includes Reamer No.	Capacity, Pipe Size, Inches	Approx. Wt., Lb.
210-R	210	$\frac{3}{8}$ to 3	5.75
R-1172	R-72	$\frac{1}{8}$ to 2	8.5

Extra Reamers

No.	Capacity, Pipe Size, In.	Reamer Style	Approx. Wt., Lb.
210	$\frac{3}{8}$ to 3	Straight	2.63
R-72	$\frac{1}{8}$ to 2	Spiral	2.75



Spiral Flute



Straight Flute



ARMSTRONG CHAIN PIPE TONGS

All parts of ARMSTRONG Chain Tongs are made from specially selected material processed to give toughness and strength and to extend tool life.

Jaws are drop forged from special high carbon steel, carefully milled, heat treated, hardened and tested for toughness and lasting qualities, and finished in red baked enamel.

Handles are forged from spring steel selected to give required stiffness. Finish is natural steel, grit blasted and oil coated.

Flat link chains, manufactured in our own plant, are heat treated and proof-tested under quality control. Each carries a lead seal indicating that it has been tested to $\frac{2}{3}$ catalog strength.

With ARMSTRONG Chain Pipe Tongs you are certain of strength beyond your greatest needs—a proven safety factor on which you can always rely.

Individual replacement parts are available for all ARMSTRONG Chain Tongs. Specify tong number and part required, when ordering.

TONGS WITH DOUBLE ENDED JAWS



ARMSTRONG Reversible-Jaw Chain Tongs have double ended jaws which may be quickly changed, end for end, if the teeth become burred or dull from long use. This feature gives double life.

No.	*For Pipe Size, Inches	Approx. Length, Inches	Chain Length, Inches	Breaking Strain, Lb.	Approx. Wt., Lb. Complete
30	$\frac{1}{8}$ to $\frac{3}{4}$	$13\frac{3}{4}$	$9\frac{1}{2}$	5,070	1.75
31	$\frac{1}{8}$ to $1\frac{1}{2}$	20	$13\frac{1}{2}$	9,400	5.75
32	$\frac{1}{4}$ to $2\frac{1}{2}$	27	$17\frac{1}{2}$	13,800	10.00
33	$\frac{3}{4}$ to 4	37	$22\frac{1}{2}$	17,600	16.00
33½	1 to 6	$44\frac{1}{2}$	32	20,100	24.00
34	$1\frac{1}{2}$ to 8	$50\frac{1}{2}$	$40\frac{1}{2}$	22,000	31.00
35	2 to 12	$64\frac{1}{2}$	$55\frac{1}{2}$	31,000	50.00
*16	4 to 18	87	$74\frac{1}{2}$	56,000	137.00

*Tongs for pipe sizes larger than 12 inches are supplied only in non-reversible jaw form as shown below.

REVERSIBLE TONGS



Reversible Chain Tongs can be used to turn pipe in either direction without having to remove the tongs from the pipe. The outer jaws can be removed from the handle to make a fittings-tong for narrow heads and flanges. Jaws are removed by taking out a single bolt and self-locking nut. Outer jaws are reversible end-for-end, to provide double jaw life.

No.	For Pipe Size, In.	Approx. Length, In.	Chain Length, In.	Breaking Strain, Lb.	Approx. Wt., Lb.
27	$\frac{1}{4}$ to $2\frac{1}{2}$	27	$17\frac{1}{2}$	13,800	12.3
37	$\frac{3}{4}$ to 4	37	$22\frac{1}{2}$	17,600	19.7
47	1 to 6	$44\frac{1}{2}$	32	20,100	29.3
57	$1\frac{1}{2}$ to 8	$50\frac{1}{2}$	$40\frac{1}{2}$	22,100	43.0

TONGS WITH SINGLE ENDED JAWS

By means of the greatly increased bearing of jaw sockets upon the bar, combined with extra large hardened steel bolt, the jaws are held solidly in place under the most severe use.

The bolt is extra large and the shackle or connecting link is drop forged from alloy steel.



With Flat Link Chain

No.	Capacity, Size Pipe, Inches	Approx. Length, Inches	Length Chain, Inches	Breaking Strain, Lb.	Approx. Wt., Lb. Complete
10	$\frac{1}{8}$ to $\frac{3}{4}$	14	$9\frac{1}{2}$	5,070	1.75
11	$\frac{1}{8}$ to $1\frac{1}{2}$	20	$13\frac{1}{2}$	9,400	6.00
12	$\frac{1}{4}$ to $2\frac{1}{2}$	27	$17\frac{1}{2}$	13,800	10.00
13	$\frac{3}{4}$ to 4	37	$22\frac{1}{2}$	17,600	16.50
13½	1 to 6	44	32	20,100	23.00
14	$1\frac{1}{2}$ to 8	51	$40\frac{1}{2}$	22,000	32.00
15	2 to 12	65	$55\frac{1}{2}$	31,000	53.00
16	4 to 18	87	$74\frac{1}{2}$	56,000	137.00



ARMSTRONG CHAIN PIPE TONGS

IDEAL PIPE AND FITTINGS TONGS

For Pipe, Fittings, and Flanges

Jaws have straight teeth for pipe and V-shaped teeth for fittings. This tool incorporates the quality features common to all ARMSTRONG chain tongs as described on page 110.

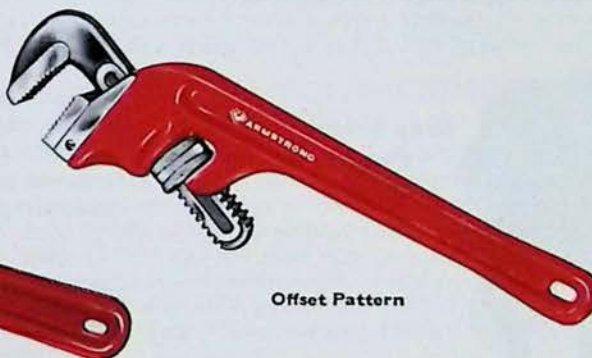


No.	CAPACITY		Approx. Length Inches	Length Inches	Breaking Strain Lb.	Approx. Wt., Lb. Complete
	Size Pipe Inches	Size Fittings Inches				
2	1/2 to 3 1/2	1/2 to 3	27	17 1/2	13,800	10
3	1 to 5	1 to 4	38	22 1/2	17,600	18
4	1 to 8	1 to 6	49	32	22,000	27
5	2 to 12	2 to 10	61	50	31,000	52

ARMSTRONG PIPE WRENCHES



Straight Pattern



Offset Pattern

Straight No.	Offset No.	Capacity Pipe, Size, Inches	Length Inches	Approx. Wt., Lb.
6M		1/8 to 3/4	6	.44
8M	8E	1/8 to 1	8	.88
10M	10E	1/8 to 1 1/2	10	1.88
12M		1/8 to 2	12	2.13
14M	14E	1/4 to 2	14	3.39
18M	18E	1/4 to 2 1/2	18	5.50
24M		1/4 to 3	24	9.25
36M		1/4 to 4 1/2	36	16.13
48M		1 to 6	48	30.00

ARMSTRONG Pipe Wrenches are scientifically designed for maximum strength and safety with minimum weight. Handles are made of pearlitic malleable alloy. Drop forged calibrated hook jaw and spring suspension insure easy adjustment, instant gripping and release of pipe. Adjusting nut spins easily. Insert jaw is replaceable. Housing is finished in red baked enamel. Hole in handle for hanging up wrench.

ARMSTRONG Offset Pipe Wrenches incorporate the same important features as the straight pattern, but the hook jaw is offset to facilitate turning pipe in close quarters.

As are all ARMSTRONG Tools, our Pipe Wrenches are guaranteed to your satisfaction.

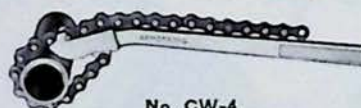
STRAP WRENCHES



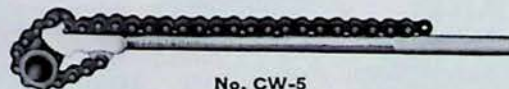
ARMSTRONG Strap Wrenches are designed for use on highly polished metal, plastic pipe and tubing. Specially treated woven strap prevents marring or crushing of surfaces and provides great gripping power. Body of wrench is finished in red baked enamel.

Tool No.	Capacity, Inches	Approx. Wt., Lb.
12-S	1/8 to 2	1.56
18-S	1/2 to 5	2.82

CHAIN WRENCHES



No. CW-4



No. CW-5

ARMSTRONG Chain Wrenches are drop forged from selected steel, heat treated and chrome plated. Heat treated chain wraps around pipe easily. An excellent tool for working in close quarters.

Tool No.	Capacity, Inches O.D.	Length, Inches	Approx. Wt., Lb.
CW4	3/4 to 4	11	1.4
CW5	3 to 6	20	5.25

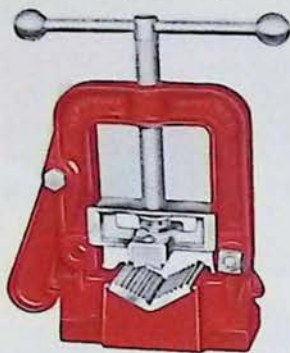


ARMSTRONG PIPE VISES

HINGED PIPE VISES

Nos. 231, 232, 233, 234

ARMSTRONG vises open and close much more quickly than conventional pipe vises. Frictionless disc enables you to exert plenty of gripping pressure on the pipe and prevents wear, since screw at no time bears on the back of the jaw. Full length, one-piece jaws prevent bending of small size pipe. Malleable iron frames and bases, finished in red baked enamel, are light weight, yet strong beyond need. Jaws, handle, and screw finished in cadmium plate.



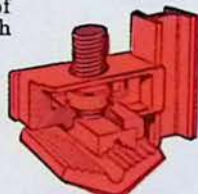
No. 231, 232, 233, 234 with 1-piece, full length jaws.

Nos. 73, 74, 75

For larger size pipe. Proportionately heavier frames and bases with reinforced bolt holes in base, drop forged hooks, and two-piece lower jaw for firmer gripping. Finished in red enamel, with jaws, handle and screw cadmium plated.

Double pitch thread on screw speeds opening-closing action, requires less pressure on handle, and jaws move twice as far per turn of handle as vise with standard pitch screw.

Frictionless disc feature of No. 231-234 vises prevents binding and wear, provides effortless operation.



No. 73, 74, 75 with 2-piece lower jaw.

No.	Holds Pipe, Size, Inches	Approx. Wt., Lb.
231*	1/8 to 1 1/2	3.50
232*	1/8 to 2	8.00
233*	1/8 to 2 1/2	12.50
234*	1/8 to 3 1/2	15.75
73	1/8 to 4 1/2	25.00
74	1/8 to 6	49.00
75	1 to 8	81.00

*Has 1-piece full length jaws.

CHAIN PIPE VISES

Available in two styles, either with handle above or below the base. Base, handle, and jaw, all finished in red baked enamel, are drop forged to provide maximum strength with minimum weight. 1-C, 2-C, 11-C, and 12-C jaws are two piece construction for firmer gripping and afford full support for holding small size pipe, thereby preventing bending.



No. 1-C, 2-C, 3-C, 4-C

Drop Forged Chain Vises



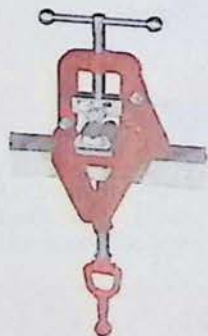
No. 11-C, 12-C

No.	Holds Pipe Size, In.	Approx. Wt. Lb.
1-C	1/8 to 2 1/2	5.00
2-C	1/4 to 4	13.38
3-C	1/4 to 6	19.50
4-C	1/4 to 8	32.25
11-C	1/8 to 2 1/2	6.40
12-C	1/4 to 4 1/2	15.00

Note:—The chains furnished on all ARMSTRONG chain pipe vises are manufactured in our own plant, and proof tested under quality control.

KIT VISES

Kit vises may be clamped onto plank, bench or post. They have all features of the 231-234 hinged vises described above.



Kit Vises No. 241, 142BX, 143BX

POST VISES

These vises attach to posts, poles, pipes, trees, etc., by means of a chain. They provide a light weight, portable means for pipe-holding.

Type	No.	Holds Pipe, Size, In.	Approx. Wt., Lb.
K	241*	1/8 to 1 1/2	4.00
I	142BX*	1/8 to 2	11.50
T	143BX*	1/8 to 2 1/2	15.50
P	163X*	1/8 to 2 1/2	20.00
O	10	1/8 to 2 1/2	12.75
S	10A	1/8 to 2 1/2	10.87
T			

*Has 1-piece full length jaws.

No. 163X Hinged Post Vise—Chain wraps around post, hooks into slot, and is tightened by handle. Fits posts up to 10" in diameter. Pipe bender at rear of base.



No. 10 Open Side Post Vise—Furnished complete with 31" Chain and wedge. Can be used on posts up to 4" in diameter or, if desired, can be bolted permanently to a bench. Vise without chain—No. 10A.



ARMSTRONG VISE STANDS

An ARMSTRONG Three-legged Vise Stand provides a sturdy mobile workbench for "on-the-job" use. Legs (and trays, where applicable) fold together for easy movement from job to job.

Nos. 933 and 935C HEAVY DUTY VISE STANDS

Rugged general purpose stands. Table measures 12"x14" and has pipe rest, three pipe benders, slots for hanging tools, ceiling brace screw, positions for oil can and dope pot. Flat feet with rubber inserts prevent sliding. Furnished complete with legs, vise and folding tray as illustrated at left. No. 935C has vise handle on top of table for easier adjustment.

Nos. 933-A and 935C-A HEAVY DUTY VISE STANDS

Same as 933 and 935-C except that they have no folding tray. Legs are drilled to accommodate tray which may be added at any time.

Nos. 833-BX and 833-C UTILITY VISE STANDS

Light weight, smaller vise stands. Table measures 9 3/4"x11" and has pipe rest, single pipe bender, slots for hanging tools, position for oil can. Flat feet with rubber inserts prevent sliding. Furnished complete with legs and vise as illustrated at left. Not equipped with tray.

No. 938 ARMSTRONG ALUMINUM VISE STAND

Aluminum construction makes this the ideal vise stand for use when frequent movement from job to job is required. Combines the firmness of the 935C stand with extremely light weight for easy mobility. Cast aluminum table measures 12"x14" and has pipe rest, two pipe benders, slots for hanging tools and positions for oil can and dope pot. Legs of aluminum alloy tubing have flat feet with rubber inserts to prevent sliding. Chain secures folding legs together for carrying.

No.	Capacity of Vise, Pipe, Size, In.	Approx. Wt., Lb.
933	1/8 to 2 1/2	51.5
933-A	1/8 to 2 1/2	47.0
935C	1/8 to 5	42.0
935C-A	1/8 to 5	51.5
938	1/8 to 5	28.5
833BX	1/8 to 2 1/2	42.0
833C	1/8 to 2 1/2	40.0

No. 933
(Without tray, No. 933-A)
Capacity, 1/8" to 2 1/2" pipe



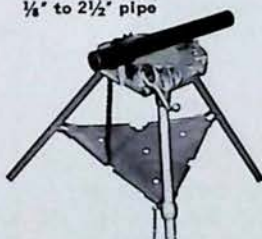
No. 935C
(Without tray, No. 935C-A)
Capacity, 1/8" to 5" pipe



No. 833-BX
Capacity,
1/8" to 2 1/2" pipe



No. 833-C
Capacity,
1/8" to 2 1/2" pipe



No. 938
Capacity, 1/8" to 5" pipe

FOUR-LEGGED VISE STANDS

ARMSTRONG 4-legged Vise Stands are slightly less easy to move than the 3-legged stands, but provide a much more solid, spacious work area. They are ideal for use on jobs which do not require frequent movement of the stand. The stand can, however, be quickly and easily disassembled for movement when required. The large, solid shelf measures 19 1/2"x18" and provides ample storage space for tools, oil cans, rags, etc. Table top is 8"x13" and is drilled to accommodate either No. 233 hinged vise or No. 12-C chain vise, described on page 120. Stand may be ordered complete with either No. 233 or No. 12-C vise, or with no vise.

No.	Capacity of Vise, Pipe, Size, In.	Approx. Wt., Lb.
4	Furnished without vise	62.0
412	1/4 to 4 1/2	75.0
471	1/8 to 2 1/2	72.0



No. 471 (With No. 233
Vise, Capacity,
1/8" to 2 1/2")

No. 412 (With
No. 12-C Vise.
Capacity,
1/4" to 4 1/2")



ARMSTRONG TUBING TOOLS

Be sure your tool kit is equipped to handle any tubing job you may encounter. Each item in this broad line of tube working tools is a quality tool designed to reduce effort, increase efficiency and ensure top quality work.

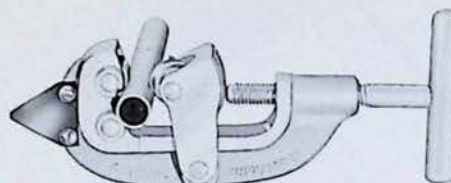
No. 115 LIGHT TUBE CUTTER



A compact tool, only five inches long, for cutting brass, copper and other tubing from $\frac{1}{8}$ " to $1\frac{1}{2}$ " O.D. Grooved rollers permit cutting of tube up close to flare. Easy removal of cutter wheel for replacement when necessary. Extra large handle. Slide moves horizontally, keeping cutter wheel always on center and assuring smooth, even cuts, perfect tracking. Retractable reamer blade mounted at front for burr removal. Each cutter individually boxed and includes an extra cutter wheel.

No.	Cuts Tubing O.D., Inches	Approx. Wt., Lb.
115	$\frac{1}{8}$ to $1\frac{1}{2}$	.75

No. 200 HEAVY DUTY TUBING CUTTER



For cutting steel tubing and thin walled conduit as well as copper and aluminum tubing from $\frac{1}{4}$ " to $1\frac{1}{2}$ " O.D. Malleable iron body is finished in red baked-on enamel. Reamer blade is fixed in position ready for use in removing burrs. Each tool packed individually in a cardboard box.

No.	Cuts Tubing O.D., Inches	Approx. Wt., Lb.
200	$\frac{1}{4}$ to $1\frac{1}{2}$	3.00

ARMSTRONG TUBE FLARING TOOLS



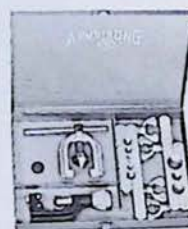
Use an ARMSTRONG Flaring Tool to apply the correct flare to brass, aluminum or soft copper tubing in your garage, aircraft, oil burner, refrigeration or plumbing work. Flaring bar is cold rolled steel, heat treated. Yoke is drop forged of steel to give greater strength and longer service. Yoke slides over the bar easily to position at proper opening. Cone produces 45° S.A.E. flares. Finished in chrome plate. Each tool individually packed in a cardboard box.

No.	Flares Tubing, O.D. Inches	Approx. Wt., Lb.
7075	$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$	1.8
7076	$\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$	1.8
7077	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$	1.8
7078	$\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$	1.8
7079	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	1.8

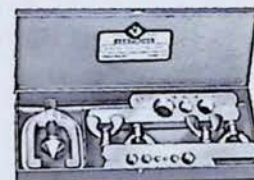
TUBE FLARING SET

No. 7080 wide range flaring tool set—for $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ " O.D. tubing. Complete in steel case No. C-50. Approximate weight, 3.8 lbs.

TUBING TOOL SETS



7090



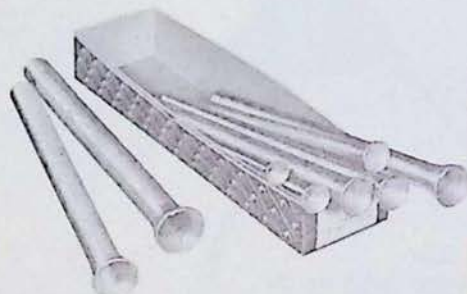
7080

TUBE CUTTING AND FLARING SET

No. 7090 combination tube cutting and flaring set—consists of No. 7080 flaring set and No. 115 light tube cutter, complete in steel case No. C-51. Approximate weight, 4.8 lbs.

ARMSTRONG TUBE BENDERS

These spring type tube benders enable you to bend soft copper and aluminum tubing quickly, easily, and without danger of distorting or crushing tubing at the bending point. Benders are easily removed after bend has been made. Finished in bright zinc plate, packed five to the box.



Tube Bender Sets

Set No.	Capacity, Tubing, O.D., Inches	Approx. Wt., Lb.
TB-6	$\frac{1}{4}$ to $\frac{5}{8}$	1.75
TB-8	$\frac{1}{4}$ to $\frac{1}{2}$	3.00

Tube Benders

No.	Bends Tubing, O.D., In.	Length, Inches	Approx. Wt., Lb.
TB-08	$\frac{1}{4}$	10	.08
TB-10	$\frac{5}{16}$	10	.13
TB-12	$\frac{3}{8}$	10	.19
TB-14	$\frac{7}{16}$	12	.28
TB-16	$\frac{1}{2}$	12	.44
TB-20	$\frac{5}{8}$	12	.53
TB-24	$\frac{3}{4}$	12	.61
TB-28	$\frac{7}{8}$	12	.88



WRENCH OPENING CHART

American Standard Bolts, Nuts and Cap Screws

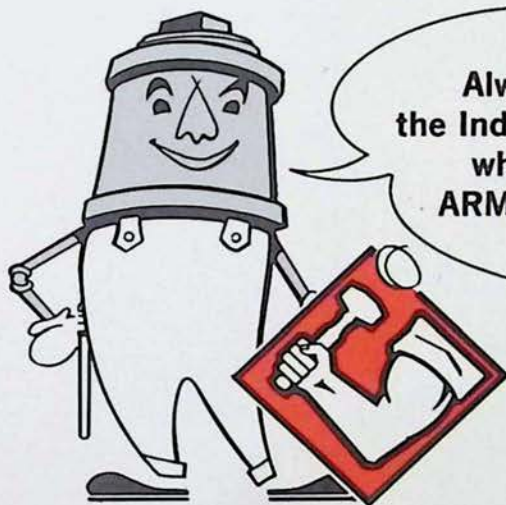
Nominal Wrench Opening Inches	Regular Series				Heavy Series				Light Series		Finished Series		For Hex Head Cap Screws Diameter Screws Inches		For Set Screws Diam. In.	For Machine Screw Nuts and Stove Bolt Nuts
	For Nuts Size Bolts Inches		For Bolts Diameter Inches		For Nuts Size Bolts Inches		For Bolts Diameter Inches		For Nuts Size Bolts Inches		For Nuts and Thick Nuts Size Bolts In.	For Bolts Diam. In.	NEW	OLD	OLD and NEW	OLD and NEW
	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	NEW				
5/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 0 & 1
3/16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 10	No. 2 & 3
7/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 12	...
1/4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1/4	No. 4
5/16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5/16	No. 5 & 6
11/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 8
3/8	...	...	*1/4	1/4	...	...	...	...	...	...	...	...	...	...	3/8	No. 10
7/16	1/4	1/4	1/4	5/16	1/4	1/4	...	1/4	...	5/16	1/4	1/4	1/4	1/4	5/16	No. 12 & 14
1/2	...	...	5/16	3/8	5/16	...	...	...	...	3/8	3/8	3/8	3/8	3/8	1/2	...
9/16	5/16	5/16	3/8	3/8	5/16	...	...	...	...	3/8	3/8	3/8	3/8	3/8	5/8	...
19/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5/8	3/8	3/8	7/16	7/16	...	...	...	...	...	7/16	7/16	7/16	7/16	7/16	5/8	3/8
11/16	...	...	...	...	3/8	3/8	...	3/8	...	...	7/16	...	...	...	...	...
3/4	7/16	7/16	1/2	1/2	7/16	...	...	...	...	1/2	1/2	1/2	1/2	1/2	3/4	...
25/32	...	...	...	...	...	7/16	...	7/16	...	...	...	...	...	...	...	...
13/16	1/2	1/2	9/16	...	...	...	...	...	...	...	...	9/16	9/16	9/16	7/8	...
7/8	9/16	9/16	...	9/16	1/2	1/2	1/2	1/2	...	9/16	9/16	9/16	9/16	9/16	...	...
15/16	...	...	5/8	5/8	9/16	9/16	...	9/16	...	5/8	5/8	5/8	5/8	5/8	1	...
1	5/8	5/8	...	...	5/8	5/8	5/8	5/8	...	3/4	...	...	...	...	1	...
11/16	...	...	...	...	5/8	5/8	5/8	5/8	...	3/4	...	...	...	...	1 1/8	...
1 1/8	3/4	3/4	3/4	3/4	...	...	...	...	...	...	3/4	3/4	3/4	3/4	1 1/8	...
1 1/4	...	...	...	...	3/4	3/4	3/4	3/4	...	7/8	...	...	...	...	1 1/4	...
1 5/16	7/8	7/8	7/8	7/8	...	...	...	...	...	7/8	7/8	7/8	7/8	7/8	1 5/16	...
1 3/8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1 3/8	...
1 7/16	...	...	...	...	7/8	7/8	7/8	7/8	...	1	...	...	...	...	1 7/16	...
1 1/2	1	1	1	1	...	...	...	...	...	1 1/8	...	...	...	...	1 1/2	...
1 5/8	...	...	...	...	1	1	1	1	...	...	1 1/8	1 1/8	1 1/8	1 1/8	...	...
1 11/16	1 1/8	1 1/8	1 1/8	1 1/8	...	...	...	...	...	...	1 1/8	1 1/8	1 1/8	1 1/8	...	...
1 13/16	...	...	...	...	1 1/8	1 1/8	1 1/8	1 1/8	...	1 1/4	...	...	...	...	...	...
1 7/8	1 1/4	1 1/4	1 1/4	1 1/4	...	...	...	...	...	...	1 1/4	1 1/4	1 1/4	1 1/4	...	...
2	...	...	...	...	1 1/4	1 1/4	1 1/4	1 1/4	...	1 3/8	...	...	...	...	...	...
2 1/16	1 3/8	1 3/8	1 3/8	1 3/8	...	...	...	...	...	...	1 3/8	1 3/8	1 3/8	1 3/8	...	...
2 3/16	...	...	...	...	1 3/8	1 3/8	1 3/8	1 3/8	...	1 1/2	...	...	...	...	...	...
2 1/4	1 1/2	1 1/2	1 1/2	1 1/2	...	...	...	...	...	...	1 1/2	1 1/2	1 1/2	1 1/2	...	...
2 3/8	...	...	...	...	1 1/2	1 1/2	1 1/2	1 1/2	...	...	...	...	...	...	...	...
2 7/16	1 5/8	1 5/8	1 5/8	1 5/8	...	...	...	...	...	...	1 5/8	1 5/8	1 5/8	1 5/8	...	...
2 9/16	...	...	...	...	1 5/8	1 5/8	1 5/8	1 5/8	...	...	...	...	...	...	...	...
2 5/8	1 3/4	1 3/4	1 3/4	1 3/4	...	...	...	...	...	...	1 3/4	1 3/4	1 3/4	1 3/4	...	...
2 3/4	...	...	...	...	1 3/4	1 3/4	1 3/4	1 3/4	...	...	...	...	...	...	...	...
2 13/16	1 7/8	1 7/8	1 7/8	1 7/8	...	...	...	...	...	...	1 7/8	1 7/8	1 7/8	1 7/8	...	...
2 15/16	...	...	...	...	1 7/8	1 7/8	1 7/8	1 7/8	...	...	...	...	...	...	...	...
3	2	2	2	2	...	...	...	...	...	...	2	2	2	2	...	...
3 1/8	...	...	...	...	2	2	2	2	...	...	...	...	...	...	...	...
3 3/8	2 1/4	2 1/4	2 1/4	2 1/4	...	...	...	...	...	...	2 1/4	2 1/4	2 1/4	2 1/4	...	...
3 1/2	...	...	...	...	2 1/4	2 1/4	2 1/4	2 1/4	...	...	...	...	...	...	...	...
3 3/4	2 1/2	2 1/2	2 1/2	2 1/2	...	...	...	...	...	...	2 1/2	2 1/2	2 1/2	2 1/2	...	...
3 7/8	...	...	...	...	2 1/2	2 1/2	2 1/2	2 1/2	...	...	...	...	...	...	...	...
4 1/8	2 3/4	2 3/4	2 3/4	2 3/4	...	...	...	...	...	...	2 3/4	2 3/4	2 3/4	2 3/4	...	...
4 1/4	...	...	...	...	2 3/4	2 3/4	2 3/4	2 3/4	...	...	...	...	...	...	...	...
4 1/2	3	3	3	3	...	...	...	...	...	...	3	3	3	3	...	...
4 5/8	...	...	...	...	3	3	3	3	...	...	...	...	...	...	...	...
4 7/8	...	...	3 1/4	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	3 1/4	3 1/4	...	3 1/4	...	...	...	...	...	...	...	...
5 1/4	...	...	3 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...
5 3/8	...	...	...	...	3 1/2	3 1/2	...	3 1/2	...	...	...	...	...	...	...	...
5 5/8	...	...	3 3/4	...	...	...	...	...	...	...	...	...	...	...	...	...
5 3/4	...	...	...	...	3 3/4	3 3/4	...	3 3/4	...	...	...	...	...	...	...	...
6	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...
6 1/8	...	...	...	...	4	4	...	4	...	...	...	...	...	...	...	...

*Square only.

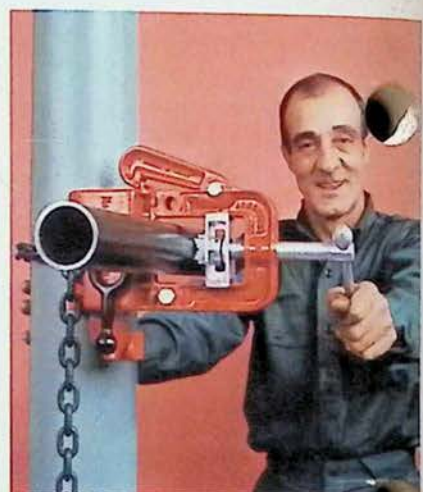
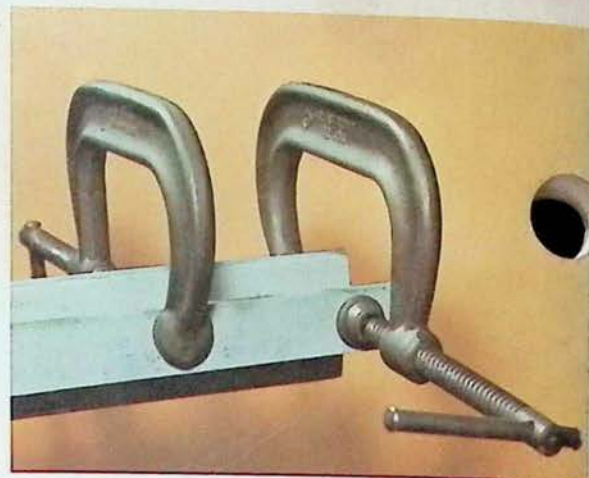


CONVERSION CHART SHOWING MILLIMETER SIZES, DECIMAL AND FRACTIONAL INCH SIZES AND DRILL NUMBER SIZES

Milli-Meter	Dec. Equiv.	Frac-tional	Drill No.	Milli-Meter	Dec. Equiv.	Frac-tional	Drill No.	Milli-Meter	Dec. Equiv.	Frac-tional	Drill No.	Milli-Meter	Dec. Equiv.	Frac-tional	Drill No.	Milli-Meter	Dec. Equiv.	Frac-tional
.1	.0039			1.75	.0689			.....	.1570		22	6.8	.2677			10.72	.4219	$\frac{27}{64}$
.15	.0059			.....	.0700		50	4.0	.1575			6.9	.2716			11.0	.4330	
.2	.0079			1.8	.0709			.....	.1590		21	.....	.2720		I	11.11	.4375	$\frac{7}{16}$
.25	.0098			1.85	.0728			.....	.1610		20	7.0	.2756			11.5	.4528	
.3	.0118			.....	.0730		49	4.1	.1614			.....	.2770		J	11.51	.4531	$\frac{29}{64}$
.....	.0135			1.9	.0748			4.2	.1654			7.1	.2795			11.91	.4687	$\frac{15}{32}$
.35	.0138		80	.....	.0760		48	.....	.1660		19	.....	.2811		K	12.0	.4724	
.....	.0145			1.95	.0767			4.25	.1673			7.14	.2812	$\frac{9}{32}$	...	12.30	.4843	$\frac{31}{64}$
.39	.0156	$\frac{1}{64}$	...	1.98	.0781	$\frac{5}{64}$	...	4.3	.1693			7.2	.2835			12.5	.4921	
.4	.0157			.....	.0785		47	.....	.1695		18	7.25	.2854			12.7	.5000	$\frac{1}{2}$
.....	.0160			2.0	.0787			4.37	.1719	$\frac{11}{64}$	...	7.3	.2874			13.0	.5118	
.45	.0177		78	2.05	.0807			.....	.1730		17	.....	.2900		L	13.10	.5156	$\frac{33}{64}$
.....	.0180			.....	.0810		46	4.4	.1732			7.4	.2913			13.49	.5312	$\frac{17}{32}$
.5	.0197			.....	.0820		45	.....	.1770		16	.....	.2950		M	13.5	.5315	
.....	.0200			2.1	.0827			4.5	.1771			7.5	.2953			13.89	.5469	$\frac{35}{64}$
.....	.0210		75	2.15	.0846			.....	.1800		15	7.54	.2968	$\frac{19}{64}$	...	14.0	.5512	
.55	.0217			.....	.0860		44	4.6	.1811			7.6	.2992			14.29	.5625	$\frac{9}{16}$
.....	.0225			2.2	.0866			.....	.1820		14	.....	.3020		N	14.5	.5709	
.6	.0236			2.25	.0885			4.7	.1850		13	7.7	.3031			14.68	.5781	$\frac{37}{64}$
.....	.0240		73	.....	.0890		43	4.75	.1870			7.75	.3051			15.0	.5906	
.....	.0250			2.3	.0905			4.76	.1875	$\frac{3}{16}$	...	7.8	.3071			15.08	.5937	$\frac{19}{32}$
.65	.0256			2.35	.0925			4.8	.1890		12	7.9	.3110			15.48	.6094	$\frac{39}{64}$
.....	.0260		71	.....	.0935		42	.....	.1910		11	7.94	.3125	$\frac{5}{16}$	...	15.5	.6102	
.7	.0276			2.38	.0937	$\frac{3}{32}$	...	4.9	.1929			8.0	.3150			15.88	.6250	$\frac{5}{8}$
.....	.0280			2.4	.0945			.....	.1935		10	.....	.3160		O	16.0	.6299	
.....	.0292		69	.....	.0960		41	.....	.1960		9	8.1	.3189			16.27	.6406	$\frac{41}{64}$
.75	.0295			2.45	.0964			5.0	.1968			8.2	.3228			16.5	.6496	
.....	.0310		68	.....	.0980		40	.....	.1990		8	.....	.3230		P	16.67	.6562	$\frac{21}{32}$
.79	.0312	$\frac{1}{32}$	...	2.5	.0984			5.1	.2008			8.25	.3248			17.0	.6693	
.8	.0315			.....	.0995		39	.....	.2010		7	8.3	.3268			17.06	.6719	$\frac{43}{64}$
.....	.0320		67	.....	.1015		38	5.16	.2031	$\frac{13}{64}$	...	8.33	.3281	$\frac{21}{64}$	...	17.46	.6875	$\frac{11}{16}$
.....	.0330		66	2.6	.1024			.....	.2040		6	8.4	.3307			17.5	.6890	
.85	.0335			.....	.1040		37	5.2	.2047			.....	.3320		Q	17.86	.7031	$\frac{45}{64}$
.....	.0350		65	2.7	.1063			.....	.2055		5	8.5	.3346			18.0	.7087	
.9	.0354			.....	.1065		36	5.25	.2067			8.6	.3386			18.26	.7187	$\frac{23}{32}$
.....	.0360		64	2.75	.1082			5.3	.2086			.....	.3390		R	18.5	.7283	
.....	.0370		63	2.78	.1094	$\frac{1}{64}$	...	.....	.2090		4	8.7	.3425			18.65	.7344	$\frac{47}{64}$
.95	.0374			.....	.1100		35	5.4	.2126			8.73	.3437	$\frac{11}{32}$	...	19.0	.7480	
.....	.0380		62	2.8	.1102			.....	.2130		3	8.75	.3445			19.05	.7500	$\frac{3}{4}$
.....	.0390		61	.....	.1110		34	5.5	.2165			8.8	.3465			19.45	.7656	$\frac{49}{64}$
1.0	.0394			.....	.1130		33	5.56	.2187	$\frac{7}{32}$	...	.....	.3480		S	19.5	.7677	
.....	.0400		60	2.9	.1141			5.6	.2205			8.9	.3504			19.84	.7812	$\frac{25}{32}$
.....	.0410		59	.....	.1160		32	.....	.2210		2	9.0	.3543			20.0	.7874	
1.05	.0413			3.0	.1181			5.7	.2244			.....	.3580		T	20.24	.7969	$\frac{51}{64}$
.....	.0420		58	.....	.1200		31	5.75	.2263			9.1	.3583			20.5	.8071	
.....	.0430		57	3.1	.1220			.....	.2280		1	9.13	.3594	$\frac{23}{64}$	...	20.64	.8125	$\frac{13}{16}$
1.1	.0433			3.18	.1250	$\frac{1}{8}$	...	5.8	.2283			9.2	.3622			21.0	.8268	
1.15	.0452			3.2	.1260			5.9	.2323			9.25	.3641			21.03	.8281	$\frac{53}{64}$
.....	.0465		56	3.25	.1279			.....	.2340		A	9.3	.3661			21.43	.8437	$\frac{27}{32}$
1.19	.0469	$\frac{3}{64}$	...	.....	.1285		30	5.95	.2344	$\frac{15}{64}$	...	.....	.3680		U	21.5	.8465	
1.2	.0472			3.3	.1299			6.0	.2362			9.4	.3701			21.83	.8594	$\frac{55}{64}$
1.25	.0492			3.4	.1338			.....	.2380		B	9.5	.3740			22.0	.8661	
1.3	.0512			.....	.1360		29	6.1	.2401			9.53	.3750	$\frac{3}{8}$	...	22.23	.8750	$\frac{7}{8}$
.....	.0520		55	3.5	.1378			.....	.2420		C	.....	.3770		V	22.5	.8858	
1.35	.0531			.....	.1405		28	6.2	.2441			9.6	.3780			22.62	.8906	$\frac{57}{64}$
.....	.0550		54	3.57	.1406	$\frac{9}{64}$	...	6.25	.2460		D	9.7	.3819			23.0	.9055	
1.4	.0551			3.6	.1417			6.3	.2480			9.75	.3838			23.02	.9062	$\frac{29}{32}$
1.45	.0570			.....	.1440		27	6.35	.2500	$\frac{1}{4}$	E	9.8	.3858			23.42	.9219	$\frac{59}{64}$
1.5	.0591			3.7	.1457			6.4	.2520			.....	.3860		W	23.5	.9252	
.....	.0595		53	.....	.1470		26	6.5	.2559			9.9	.3898			23.81	.9375	$\frac{15}{16}$
1.55	.0610			3.75	.1476			.....	.2570		F	9.92	.3906	$\frac{25}{64}$	...	24.0	.9449	
1.59	.0625	$\frac{1}{16}$	...	.....	.1495		25	6.6	.2598			10.0	.3937			24.21	.9531	$\frac{61}{64}$
1.6	.0629			3.8	.1496			.....	.2610		G	.....	.3970		X	24.5	.9646	
.....	.0635		52	.....	.1520		24	6.7	.2638			.....	.4040		Y	24.61	.9687	$\frac{31}{32}$
1.65	.0649			3.9	.1535			6.75	.2657	$\frac{17}{64}$	...	10.32	.4062	$\frac{13}{32}$	...	25.0	.9843	
1.7	.0669				.1540		23	6.75	.2657				.4130		Z	25.03	.9844	$\frac{63}{64}$
.....	.0670		51	3.97	.1562	$\frac{5}{32}$	...		.2660		H	10.5	.4134			25.4	1.0000	1



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